

SEQUENCE LISTING

<110> Karicheti, Venkateswarlu  
Silos-Santiago, Inmaculada  
Eliasof, Scott D.

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18547, 115, 579, 15985, 15625, 760, 18603, 2395, 2554, 8675,  
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Asn Arg Asn Asp Arg Trp Ile Gln Asp Glu Met Glu Leu Gly Tyr Val	
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Phe Arg Met Leu Leu Ala Ser Pro Gly Ala Cys Phe Lys Leu Phe Gln	
490 495 500	
gaa aag cag aag tgt ggc cac ggg agg gcc ctc ctg ttc cag ggg gtt	1592
Glu Lys Gln Lys Cys Gly His Gly Arg Ala Leu Leu Phe Gln Gly Val	
505 510 515	
gtt gat gat gag cag gtc aag acc atc tcc atc aac cag gtg ctc tcc	1640
Val Asp Asp Glu Gln Val Lys Thr Ile Ser Ile Asn Gln Val Leu Ser	
520 525 530	
aat aaa gac ctc atc aac tac aat aag ttt gtg cag agc tgc atc gac	1688
Asn Lys Asp Leu Ile Asn Tyr Asn Lys Phe Val Gln Ser Cys Ile Asp	
535 540 545	
tgg aac cgt gag gtg ctg aag cgg gag ctg ggc ctg gca gag tgt gac	1736
Trp Asn Arg Glu Val Leu Lys Arg Glu Leu Gly Leu Ala Glu Cys Asp	
550 555 560 565	
atc att gac atc cca cag ctc ttc aag acc gag agg aaa aaa gca acg	1784
Ile Ile Asp Ile Pro Gln Leu Phe Lys Thr Glu Arg Lys Lys Ala Thr	
570 575 580	

gcc ttc ttc cct gac ttg gtg aac atg ctg gtg ctg ggg aag cac ctg 1832  
 Ala Phe Phe Pro Asp Leu Val Asn Met Leu Val Leu Gly Lys His Leu  
 585 590 595

ggc atc ccc aag ccc ttt ggg ccc atc atc aat ggc tgc tgc tgc ctg 1880  
 Gly Ile Pro Lys Pro Phe Gly Pro Ile Ile Asn Gly Cys Cys Cys Leu  
 600 605 610

gag gag aag gtg cgg tcc ctg ctg gag cct ctg ggc ctc cac tgc acc 1928  
 Glu Glu Lys Val Arg Ser Leu Leu Glu Pro Leu Gly Leu His Cys Thr  
 615 620 625

ttc att gat gac ttc act cca tac cac atg ctg cat ggg gag gtg cac 1976  
 Phe Ile Asp Asp Phe Thr Pro Tyr His Met Leu His Gly Glu Val His  
 630 635 640 645

tgt ggc acc aat gtg tgc aga aag ccc ttc tct ttc aag tgg tgg aac 2024  
 Cys Gly Thr Asn Val Cys Arg Lys Pro Phe Ser Phe Lys Trp Trp Asn  
 650 655 660

atg gtg ccc tga gacagctccc acccaccatc ctgtccccct ggggcggggca 2076  
 Met Val Pro \*

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 tccagatgga acactgaggg tgaccgtccc tctcagaagc ttttccctgg agtgtcatgc 2196  
 ctcacctgca acccatgtgg ttctcagact tgaatcttct cgccccccaa aaatgaagga 2256  
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 ctctgaaatc atccatttgg ggacaaatcc acattggggg ctagaaacat ccacgtatct 2376  
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 aagggtgaaa agtagttccc ataatacaca tgggtgacta tgggtgatcca ccttgtgatg 2856  
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Val Pro Glu Gly Thr Glu Met Phe Glu Val Tyr Gly Thr Pro Gly Val  
 35 40 45  
 Asp Ile Tyr Ile Ser Pro Asn Met Glu Arg Gly Arg Glu Arg Ala Asp  
 50 55 60  
 Thr Arg Arg Trp Arg Phe Asp Ala Thr Leu Glu Ile Ile Val Val Met

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Asn	Ser	Pro	Ser	Asn	Asp	Leu	Asn	Asp	Ser	His	Val	Gln	Ile	Ser	Tyr
				85					90					95	
His	Ser	Ser	His	Glu	Pro	Leu	Pro	Leu	Ala	Tyr	Ala	Val	Leu	Tyr	Leu
			100					105					110		
Thr	Cys	Val	Asp	Ile	Ser	Leu	Asp	Cys	Asp	Leu	Asn	Cys	Glu	Gly	Arg
		115					120					125			
Gln	Asp	Arg	Asn	Phe	Val	Asp	Lys	Arg	Gln	Trp	Val	Trp	Gly	Pro	Ser
	130					135					140				
Gly	Tyr	Gly	Gly	Ile	Leu	Leu	Val	Asn	Cys	Asp	Arg	Asp	Asp	Pro	Ser
145					150					155				160	
Cys	Asp	Val	Gln	Asp	Asn	Cys	Asp	Gln	His	Val	His	Cys	Leu	Gln	Asp
				165				170						175	
Leu	Glu	Asp	Met	Ser	Val	Met	Val	Leu	Arg	Thr	Gln	Gly	Pro	Ala	Ala
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Leu	Phe	Asp	Asp	His	Lys	Leu	Val	Leu	His	Thr	Ser	Ser	Tyr	Asp	Ala
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Lys	Arg	Ala	Gln	Val	Phe	His	Ile	Cys	Gly	Pro	Glu	Asp	Val	Cys	Glu
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Ala	Tyr	Arg	His	Val	Leu	Gly	Gln	Asp	Lys	Val	Ser	Tyr	Glu	Val	Pro
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Arg	Leu	His	Gly	Asp	Glu	Glu	Arg	Phe	Phe	Val	Glu	Gly	Leu	Ser	Phe
			245					250						255	
Pro	Asp	Ala	Gly	Phe	Thr	Gly	Leu	Ile	Ser	Phe	His	Val	Thr	Leu	Leu
		260					265						270		
Asp	Asp	Ser	Asn	Glu	Asp	Phe	Ser	Ala	Ser	Pro	Ile	Phe	Thr	Asp	Thr
		275					280					285			
Val	Val	Phe	Arg	Val	Ala	Pro	Trp	Ile	Met	Thr	Pro	Ser	Thr	Leu	Pro
	290					295					300				
Pro	Leu	Glu	Val	Tyr	Val	Cys	Arg	Val	Arg	Asn	Asn	Thr	Cys	Phe	Val
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Asp	Ala	Val	Ala	Glu	Leu	Ala	Arg	Lys	Ala	Gly	Cys	Lys	Leu	Thr	Ile
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Cys	Pro	Gln	Ala	Glu	Asn	Arg	Asn	Asp	Arg	Trp	Ile	Gln	Asp	Glu	Met
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Glu	Leu	Gly	Tyr	Val	Gln	Ala	Pro	His	Lys	Thr	Leu	Pro	Val	Val	Phe
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Asp	Ser	Pro	Arg	Asn	Gly	Glu	Leu	Gln	Asp	Phe	Pro	Tyr	Lys	Arg	Ile
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385					390					395					400
Val	Ser	Gly	Leu	Asp	Ser	Phe	Gly	Asn	Leu	Glu	Val	Ser	Pro	Pro	Val
			405						410					415	
Val	Ala	Asn	Gly	Lys	Glu	Tyr	Pro	Leu	Gly	Arg	Ile	Leu	Ile	Gly	Gly
		420						425					430		
Asn	Leu	Pro	Gly	Ser	Ser	Gly	Arg	Arg	Val	Thr	Gln	Val	Val	Arg	Asp
		435					440					445			
Phe	Leu	His	Ala	Gln	Lys	Val	Gln	Pro	Pro	Val	Glu	Leu	Phe	Val	Asp
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Trp	Leu	Ala	Val	Gly	His	Val	Asp	Glu	Phe	Leu	Ser	Phe	Val	Pro	Val
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Pro	Asp	Gly	Lys	Gly	Phe	Arg	Met	Leu	Leu	Ala	Ser	Pro	Gly	Ala	Cys
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Phe	Lys	Leu	Phe	Gln	Glu	Lys	Gln	Lys	Cys	Gly	His	Gly	Arg	Ala	Leu
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Leu	Phe	Gln	Gly	Val	Val	Asp	Asp	Glu	Gln	Val	Lys	Thr	Ile	Ser	Ile
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Asn	Gln	Val	Leu	Ser	Asn	Lys	Asp	Leu	Ile	Asn	Tyr	Asn	Lys	Phe	Val
	530					535					540				
Gln	Ser	Cys	Ile	Asp	Trp	Asn	Arg	Glu	Val	Leu	Lys	Arg	Glu	Leu	Gly

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Leu	Ala	Glu	Cys	Asp	Ile	Ile	Asp	Ile	Pro	Gln	Leu	Phe	Lys	Thr
				565					570					575
Arg	Lys	Lys	Ala	Thr	Ala	Phe	Phe	Pro	Asp	Leu	Val	Asn	Met	Leu
			580					585					590	
Leu	Gly	Lys	His	Leu	Gly	Ile	Pro	Lys	Pro	Phe	Gly	Pro	Ile	Ile
		595					600					605		Asn
Gly	Cys	Cys	Cys	Leu	Glu	Glu	Lys	Val	Arg	Ser	Leu	Leu	Glu	Pro
	610					615					620			Leu
Gly	Leu	His	Cys	Thr	Phe	Ile	Asp	Asp	Phe	Thr	Pro	Tyr	His	Met
	625				630					635				640
His	Gly	Glu	Val	His	Cys	Gly	Thr	Asn	Val	Cys	Arg	Lys	Pro	Phe
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Phe	Lys	Trp	Trp	Asn	Met	Val	Pro							
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Met Asp Val Val Asp Ser Leu Leu Val Asn Gly Ser Asn	
1 5 10	
atc act cct ccc tgt gaa ctc ggg ctc gaa aat gag acg ctt ttc tgc	158
Ile Thr Pro Pro Cys Glu Leu Gly Leu Glu Asn Glu Thr Leu Phe Cys	
15 20 25	
ttg gat cag ccc cgt cct tcc aaa gag tgg cag cca gcg gtg cag att	206
Leu Asp Gln Pro Arg Pro Ser Lys Glu Trp Gln Pro Ala Val Gln Ile	
30 35 40 45	
ctc ttg tac tcc ttg ata ttc ctg ctc agc gtg ctg gga aac acg ctg	254
Leu Leu Tyr Ser Leu Ile Phe Leu Leu Ser Val Leu Gly Asn Thr Leu	
50 55 60	
gtc atc acc gtg ctg att cgg aac aag cgg atg cgg acg gtc acc aac	302
Val Ile Thr Val Leu Ile Arg Asn Lys Arg Met Arg Thr Val Thr Asn	
65 70 75	
atc ttc ctc ctc tcc ctg gct gtc agc gac ctc atg ctc tgt ctc ttc	350
Ile Phe Leu Leu Ser Leu Ala Val Ser Asp Leu Met Leu Cys Leu Phe	
80 85 90	
tgc atg ccg ttc aac ctc atc ccc aat ctg ctc aag gat ttc atc ttc	398
Cys Met Pro Phe Asn Leu Ile Pro Asn Leu Leu Lys Asp Phe Ile Phe	
95 100 105	
ggg agc gcc gtt tgc aag acc acc acc tac ttc atg ggc acc tct gtg	446
Gly Ser Ala Val Cys Lys Thr Thr Thr Tyr Phe Met Gly Thr Ser Val	
110 115 120 125	

agc gta tct acc ttt aat ctg gta gcc ata tct cta gag aga tat ggt	494
Ser Val Ser Thr Phe Asn Leu Val Ala Ile Ser Leu Glu Arg Tyr Gly	
130 135 140	
gcg att tgc aaa ccc tta cag tcc cgg gtc tgg cag aca aaa tcc cat	542
Ala Ile Cys Lys Pro Leu Gln Ser Arg Val Trp Gln Thr Lys Ser His	
145 150 155	
gct ttg aag gtg att gct gct acc tgg tgc ctt tcc ttt acc atc atg	590
Ala Leu Lys Val Ile Ala Ala Thr Trp Cys Leu Ser Phe Thr Ile Met	
160 165 170	
act ccg tac ccc att tat agc aac ttg gtg cct ttt acc aaa aat aac	638
Thr Pro Tyr Pro Ile Tyr Ser Asn Leu Val Pro Phe Thr Lys Asn Asn	
175 180 185	
aac cag acc gcg aat atg tgc cgc ttt cta ctg cca aat gat gtt atg	686
Asn Gln Thr Ala Asn Met Cys Arg Phe Leu Leu Pro Asn Asp Val Met	
190 195 200 205	
cag cag tcc tgg cac aca ttc ctg tta ctc atc ctc ttt ctt att cct	734
Gln Gln Ser Trp His Thr Phe Leu Leu Leu Ile Leu Phe Leu Ile Pro	
210 215 220	
gga att gtg atg atg gtg gca tat gga tta atc tct ttg gaa ctc tac	782
Gly Ile Val Met Met Val Ala Tyr Gly Leu Ile Ser Leu Glu Leu Tyr	
225 230 235	
cag gga ata aaa ttt gag gct agc cag aag aag tct gct aaa gaa agg	830
Gln Gly Ile Lys Phe Glu Ala Ser Gln Lys Lys Ser Ala Lys Glu Arg	
240 245 250	
aaa cct agc acc acc agc agc ggc aaa tat gag gac agc gat ggg tgt	878
Lys Pro Ser Thr Thr Ser Ser Gly Lys Tyr Glu Asp Ser Asp Gly Cys	
255 260 265	
tac ctg caa aag acc agg ccc ccg agg aag ctg gag ctc cgg cag ctg	926
Tyr Leu Gln Lys Thr Arg Pro Pro Arg Lys Leu Glu Leu Arg Gln Leu	
270 275 280 285	
tcc acc ggc agc agc agc agg gcc aac cgc atc cgg agt aac agc tcc	974
Ser Thr Gly Ser Ser Ser Arg Ala Asn Arg Ile Arg Ser Asn Ser Ser	
290 295 300	
gca gcc aac ctg atg gcc aag aaa agg gtg atc cgc atg ctc atc gtc	1022
Ala Ala Asn Leu Met Ala Lys Lys Arg Val Ile Arg Met Leu Ile Val	
305 310 315	
atc gtg gtc ctc ttc ttc ttg tgc tgg atg ccc atc ttc agc gcc aac	1070
Ile Val Val Leu Phe Phe Leu Cys Trp Met Pro Ile Phe Ser Ala Asn	
320 325 330	
gcc tgg cgg gcc tac gac acc gcc tcc gca gag cgc cgc ctc tca gga	1118
Ala Trp Arg Ala Tyr Asp Thr Ala Ser Ala Glu Arg Arg Leu Ser Gly	
335 340 345	
acc ccc att tcc ttc atc ctc ctc ctg tcc tac acc tcc tcc tgc gtc	1166
Thr Pro Ile Ser Phe Ile Leu Leu Leu Ser Tyr Thr Ser Ser Cys Val	
350 355 360 365	
aac ccc atc atc tac tgc ttc atg aac aaa cgc ttc cgc ctc ggc ttc	1214



Asn	Pro	Ile	Ile	Tyr	Cys	Phe	Met	Asn	Lys	Arg	Phe	Arg	Leu	Gly	Phe	
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atg	gcc	acc	ttc	ccc	tgc	tgc	ccc	aat	cct	ggg	ccc	cca	ggg	gcg	agg	1262
Met	Ala	Thr	Phe	Pro	Cys	Cys	Pro	Asn	Pro	Gly	Pro	Pro	Gly	Ala	Arg	
			385					390					395			
gga	gag	gtg	ggg	gag	gag	gag	gaa	ggc	ggg	acc	aca	gga	gcc	tct	ctg	1310
Gly	Glu	Val	Gly	Glu	Glu	Glu	Glu	Gly	Gly	Thr	Thr	Gly	Ala	Ser	Leu	
		400					405					410				
tcc	agg	ttc	tcg	tac	agc	cat	atg	agt	gcc	tcg	gtg	cca	ccc	cag	tga	1358
Ser	Arg	Phe	Ser	Tyr	Ser	His	Met	Ser	Ala	Ser	Val	Pro	Pro	Gln	*	
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1393																

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Pro	Cys	Glu	Leu	Gly	Leu	Glu	Asn	Glu	Thr	Leu	Phe	Cys	Leu	Asp	Gln
			20					25					30		
Pro	Arg	Pro	Ser	Lys	Glu	Trp	Gln	Pro	Ala	Val	Gln	Ile	Leu	Leu	Tyr
		35				40						45			
Ser	Leu	Ile	Phe	Leu	Leu	Ser	Val	Leu	Gly	Asn	Thr	Leu	Val	Ile	Thr
	50				55					60					
Val	Leu	Ile	Arg	Asn	Lys	Arg	Met	Arg	Thr	Val	Thr	Asn	Ile	Phe	Leu
65				70					75					80	
Leu	Ser	Leu	Ala	Val	Ser	Asp	Leu	Met	Leu	Cys	Leu	Phe	Cys	Met	Pro
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Phe	Asn	Leu	Ile	Pro	Asn	Leu	Leu	Lys	Asp	Phe	Ile	Phe	Gly	Ser	Ala
	100						105						110		
Val	Cys	Lys	Thr	Thr	Thr	Tyr	Phe	Met	Gly	Thr	Ser	Val	Ser	Val	Ser
	115					120						125			
Thr	Phe	Asn	Leu	Val	Ala	Ile	Ser	Leu	Glu	Arg	Tyr	Gly	Ala	Ile	Cys
	130				135						140				
Lys	Pro	Leu	Gln	Ser	Arg	Val	Trp	Gln	Thr	Lys	Ser	His	Ala	Leu	Lys
145				150					155					160	
Val	Ile	Ala	Ala	Thr	Trp	Cys	Leu	Ser	Phe	Thr	Ile	Met	Thr	Pro	Tyr
			165					170					175		
Pro	Ile	Tyr	Ser	Asn	Leu	Val	Pro	Phe	Thr	Lys	Asn	Asn	Asn	Gln	Thr
	180						185						190		
Ala	Asn	Met	Cys	Arg	Phe	Leu	Leu	Pro	Asn	Asp	Val	Met	Gln	Gln	Ser
	195						200					205			
Trp	His	Thr	Phe	Leu	Leu	Leu	Ile	Leu	Phe	Leu	Ile	Pro	Gly	Ile	Val
	210				215						220				
Met	Met	Val	Ala	Tyr	Gly	Leu	Ile	Ser	Leu	Glu	Leu	Tyr	Gln	Gly	Ile
225				230					235					240	
Lys	Phe	Glu	Ala	Ser	Gln	Lys	Lys	Ser	Ala	Lys	Glu	Arg	Lys	Pro	Ser
			245					250					255		
Thr	Thr	Ser	Ser	Gly	Lys	Tyr	Glu	Asp	Ser	Asp	Gly	Cys	Tyr	Leu	Gln
		260				265						270			
Lys	Thr	Arg	Pro	Pro	Arg	Lys	Leu	Glu	Leu	Arg	Gln	Leu	Ser	Thr	Gly
	275					280						285			
Ser	Ser	Ser	Arg	Ala	Asn	Arg	Ile	Arg	Ser	Asn	Ser	Ser	Ala	Ala	Asn
	290					295					300				

Leu	Met	Ala	Lys	Lys	Arg	Val	Ile	Arg	Met	Leu	Ile	Val	Ile	Val	Val
305					310					315					320
Leu	Phe	Phe	Leu	Cys	Trp	Met	Pro	Ile	Phe	Ser	Ala	Asn	Ala	Trp	Arg
				325					330					335	
Ala	Tyr	Asp	Thr	Ala	Ser	Ala	Glu	Arg	Arg	Leu	Ser	Gly	Thr	Pro	Ile
			340					345					350		
Ser	Phe	Ile	Leu	Leu	Leu	Ser	Tyr	Thr	Ser	Ser	Cys	Val	Asn	Pro	Ile
		355					360					365			
Ile	Tyr	Cys	Phe	Met	Asn	Lys	Arg	Phe	Arg	Leu	Gly	Phe	Met	Ala	Thr
	370					375					380				
Phe	Pro	Cys	Cys	Pro	Asn	Pro	Gly	Pro	Pro	Gly	Ala	Arg	Gly	Glu	Val
385					390					395					400
Gly	Glu	Glu	Glu	Glu	Gly	Gly	Thr	Thr	Gly	Ala	Ser	Leu	Ser	Arg	Phe
				405					410					415	
Ser	Tyr	Ser	His	Met	Ser	Ala	Ser	Val	Pro	Pro	Gln				
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 Met Asn Ser Phe Phe Gly  
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acc cca gcg gcc agc tgg tgc ctc ctg gaa agt gac gtc tca tct gca 164  
 Thr Pro Ala Ala Ser Trp Cys Leu Leu Glu Ser Asp Val Ser Ser Ala  
 10 15 20

ccg gac aag gag gcg ggg agg gag cgc aga gca ctc agc gtc cag cag 212  
 Pro Asp Lys Glu Ala Gly Arg Glu Arg Arg Ala Leu Ser Val Gln Gln  
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cgc ggc ggg cca gcc tgg agc gga agc ctg gag tgg agc agg cag tcc 260  
 Arg Gly Gly Pro Ala Trp Ser Gly Ser Leu Glu Trp Ser Arg Gln Ser  
 40 45 50

gcg ggg gac aga cgt cgg ctg gga ttg agc cgg cag act gcg aaa agt 308  
 Ala Gly Asp Arg Arg Arg Leu Gly Leu Ser Arg Gln Thr Ala Lys Ser  
 55 60 65 70

agc tgg agc cgg agc agg gac aga acc tgt tgc tgc aga cgg gct tgg 356  
 Ser Trp Ser Arg Ser Arg Asp Arg Thr Cys Cys Cys Arg Arg Ala Trp  
 75 80 85

tgg att ctg gtt cct gcc gcc gac agg gct cgc cgg gag agg ttc atc 404  
 Trp Ile Leu Val Pro Ala Ala Asp Arg Ala Arg Arg Glu Arg Phe Ile  
 90 95 100

atg aat gag aaa tgg gac aca aac tct tca gaa aac tgg cat ccc atc 452  
 Met Asn Glu Lys Trp Asp Thr Asn Ser Ser Glu Asn Trp His Pro Ile  
 105 110 115

tgg aat gtc aat gac aca aag cat cat ctg tac tca gat att aat att	500
Trp Asn Val Asn Asp Thr Lys His His Leu Tyr Ser Asp Ile Asn Ile	
120 125 130	
acc tat gtg aac tac tat ctt cac cag cct caa gtg gca gca atc ttc	548
Thr Tyr Val Asn Tyr Tyr Leu His Gln Pro Gln Val Ala Ala Ile Phe	
135 140 145 150	
att att tcc tac ttt ctg atc ttc ttt ttg tgc atg atg gga aat act	596
Ile Ile Ser Tyr Phe Leu Ile Phe Phe Leu Cys Met Met Gly Asn Thr	
155 160 165	
gtg gtt tgc ttt att gta atg agg aac aaa cat atg cac aca gtc act	644
Val Val Cys Phe Ile Val Met Arg Asn Lys His Met His Thr Val Thr	
170 175 180	
aat ctc ttc atc tta aac ctg gcc ata agt gat tta cta gtt ggc ata	692
Asn Leu Phe Ile Leu Asn Leu Ala Ile Ser Asp Leu Leu Val Gly Ile	
185 190 195	
ttc tgc atg cct ata aca ctg ctg gac aat att ata gca gga tgg cca	740
Phe Cys Met Pro Ile Thr Leu Leu Asp Asn Ile Ile Ala Gly Trp Pro	
200 205 210	
ttt gga aac acg atg tgc aag atc agt gga ttg gtc cag gga ata tct	788
Phe Gly Asn Thr Met Cys Lys Ile Ser Gly Leu Val Gln Gly Ile Ser	
215 220 225 230	
gtc gca gct tca gtc ttt acg tta gtt gca att gct gta gat agg ttc	836
Val Ala Ala Ser Val Phe Thr Leu Val Ala Ile Ala Val Asp Arg Phe	
235 240 245	
cag tgt gtg gtc tac cct ttt aaa cca aag ctc act atc aag aca gcg	884
Gln Cys Val Val Tyr Pro Phe Lys Pro Lys Leu Thr Ile Lys Thr Ala	
250 255 260	
ttt gtc att att atg atc atc tgg gtc cta gcc atc acc att atg tct	932
Phe Val Ile Ile Met Ile Ile Trp Val Leu Ala Ile Thr Ile Met Ser	
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cca tct gca gta atg tta cat gtg caa gaa gaa aaa tat tac cga gtg	980
Pro Ser Ala Val Met Leu His Val Gln Glu Glu Lys Tyr Tyr Arg Val	
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aga ctc aac tcc cag aat aaa acc agt cca gtc tac tgg tgc cgg gaa	1028
Arg Leu Asn Ser Gln Asn Lys Thr Ser Pro Val Tyr Trp Cys Arg Glu	
295 300 305 310	
gac tgg cca aat cag gaa atg agg aag atc tac acc act gtg ctg ttt	1076
Asp Trp Pro Asn Gln Glu Met Arg Lys Ile Tyr Thr Thr Val Leu Phe	
315 320 325	
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Ala Asn Ile Tyr Leu Ala Pro Leu Ser Leu Ile Val Ile Met Tyr Gly	
330 335 340	
agg att gga att tca ctc ttc agg gct gca gtt cct cac aca ggc agg	1172
Arg Ile Gly Ile Ser Leu Phe Arg Ala Ala Val Pro His Thr Gly Arg	
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Lys	Asn	Gln	Glu	Gln	Trp	His	Val	Val	Ser	Arg	Lys	Lys	Gln	Lys	Ile		
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Ile	Lys	Met	Leu	Leu	Ile	Val	Ala	Leu	Leu	Phe	Ile	Leu	Ser	Trp	Leu		
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ccc	ctg	tgg	act	cta	atg	atg	ctc	tca	gac	tac	gct	gac	ctt	tct	cca	1316	
Pro	Leu	Trp	Thr	Leu	Met	Met	Leu	Ser	Asp	Tyr	Ala	Asp	Leu	Ser	Pro		
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Asn	Glu	Leu	Gln	Ile	Ile	Asn	Ile	Tyr	Ile	Tyr	Pro	Phe	Ala	His	Trp		
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Leu	Ala	Phe	Gly	Asn	Ser	Ser	Val	Asn	Pro	Ile	Ile	Tyr	Gly	Phe	Phe		
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Asn	Glu	Asn	Phe	Arg	Arg	Gly	Phe	Gln	Glu	Ala	Phe	Gln	Leu	Gln	Leu		
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tgc	caa	aaa	aga	gca	aag	cct	atg	gaa	gct	tat	acc	cta	aaa	gct	aaa	1508	
Cys	Gln	Lys	Arg	Ala	Lys	Pro	Met	Glu	Ala	Tyr	Thr	Leu	Lys	Ala	Lys		
455					460					465					470		
agc	cat	gtg	ctc	ata	aac	aca	tct	aat	cag	ctt	gtc	cag	gaa	tct	aca	1556	
Ser	His	Val	Leu	Ile	Asn	Thr	Ser	Asn	Gln	Leu	Val	Gln	Glu	Ser	Thr		
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Phe	Gln	Asn	Pro	His	Gly	Glu	Thr	Leu	Leu	Tyr	Arg	Lys	Ser	Ala	Glu		
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Lys	Pro	Gln	Gln	Glu	Leu	Val	Met	Glu	Glu	Leu	Lys	Glu	Thr	Thr	Asn		
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Ser	Ser	Glu	Ile	*													
		520															
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 35 40 45  
 Glu Trp Ser Arg Gln Ser Ala Gly Asp Arg Arg Arg Leu Gly Leu Ser

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Arg Gln Thr Ala Lys Ser Ser Trp Ser Arg Ser Arg Asp Arg Thr Cys		
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Cys Cys Arg Arg Ala Trp Trp Ile Leu Val Pro Ala Ala Asp Arg Ala		80
	85	90
Arg Arg Glu Arg Phe Ile Met Asn Glu Lys Trp Asp Thr Asn Ser Ser		95
	100	105
Glu Asn Trp His Pro Ile Trp Asn Val Asn Asp Thr Lys His His Leu		110
	115	120
Tyr Ser Asp Ile Asn Ile Thr Tyr Val Asn Tyr Tyr Leu His Gln Pro		125
	130	135
Gln Val Ala Ala Ile Phe Ile Ile Ser Tyr Phe Leu Ile Phe Phe Leu		140
145	150	155
Cys Met Met Gly Asn Thr Val Val Cys Phe Ile Val Met Arg Asn Lys		160
	165	170
His Met His Thr Val Thr Asn Leu Phe Ile Leu Asn Leu Ala Ile Ser		175
	180	185
Asp Leu Leu Val Gly Ile Phe Cys Met Pro Ile Thr Leu Leu Asp Asn		190
	195	200
Ile Ile Ala Gly Trp Pro Phe Gly Asn Thr Met Cys Lys Ile Ser Gly		205
	210	215
Leu Val Gln Gly Ile Ser Val Ala Ala Ser Val Phe Thr Leu Val Ala		220
225	230	235
Ile Ala Val Asp Arg Phe Gln Cys Val Val Tyr Pro Phe Lys Pro Lys		240
	245	250
Leu Thr Ile Lys Thr Ala Phe Val Ile Ile Met Ile Ile Trp Val Leu		255
	260	265
Ala Ile Thr Ile Met Ser Pro Ser Ala Val Met Leu His Val Gln Glu		270
	275	280
Glu Lys Tyr Tyr Arg Val Arg Leu Asn Ser Gln Asn Lys Thr Ser Pro		285
	290	295
Val Tyr Trp Cys Arg Glu Asp Trp Pro Asn Gln Glu Met Arg Lys Ile		300
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Tyr Thr Thr Val Leu Phe Ala Asn Ile Tyr Leu Ala Pro Leu Ser Leu		320
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Val Pro His Thr Gly Arg Lys Asn Gln Glu Gln Trp His Val Val Ser		350
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Arg Lys Lys Gln Lys Ile Ile Lys Met Leu Leu Ile Val Ala Leu Leu		365
	370	375
Phe Ile Leu Ser Trp Leu Pro Leu Trp Thr Leu Met Met Leu Ser Asp		380
385	390	395
Tyr Ala Asp Leu Ser Pro Asn Glu Leu Gln Ile Ile Asn Ile Tyr Ile		400
	405	410
Tyr Pro Phe Ala His Trp Leu Ala Phe Gly Asn Ser Ser Val Asn Pro		415
	420	425
Ile Ile Tyr Gly Phe Phe Asn Glu Asn Phe Arg Arg Gly Phe Gln Glu		430
	435	440
Ala Phe Gln Leu Gln Leu Cys Gln Lys Arg Ala Lys Pro Met Glu Ala		445
	450	455
Tyr Thr Leu Lys Ala Lys Ser His Val Leu Ile Asn Thr Ser Asn Gln		460
465	470	475
Leu Val Gln Glu Ser Thr Phe Gln Asn Pro His Gly Glu Thr Leu Leu		480
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Tyr Arg Lys Ser Ala Glu Lys Pro Gln Gln Glu Leu Val Met Glu Glu		495
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tccctttaac atctggatta ttttttgcaa tagcgctttc tggttttgta agtgccaatt 240
tgaaacattt ttgccccca taactcgtgg actacaaagc acaaaggacc tgaaaa atg 299
                                                    Met
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Tyr Ser Phe Asn Thr Leu Arg Leu Tyr Leu Ser Gly Ala Ile Val Phe
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ttc agc ctt gct gct tct aag gag gct gaa gct gct cgc tcc gca acc 395
Phe Ser Leu Ala Ala Ser Lys Glu Ala Glu Ala Ala Arg Ser Ala Thr
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aag cct atg tca ccc tcg gat ttc ctg gat aag cta atg ggg aga acc 443
Lys Pro Met Ser Pro Ser Asp Phe Leu Asp Lys Leu Met Gly Arg Thr
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tcc gga tat gat gcc agg atc agg ccc aat ttt aaa ggt ccc cca gtg 491
Ser Gly Tyr Asp Ala Arg Ile Arg Pro Asn Phe Lys Gly Pro Pro Val
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aac gtg agc tgc aac att ttc atc aac agc ttt ggt tcc att gct gag 539
Asn Val Ser Cys Asn Ile Phe Ile Asn Ser Phe Gly Ser Ile Ala Glu
                    70                      75                      80

aca acc atg gac tat agg gtc aac atc ttc ctg cgg cag caa tgg aac 587
Thr Thr Met Asp Tyr Arg Val Asn Ile Phe Leu Arg Gln Gln Trp Asn
                    85                      90                      95

gac ccc cgc ctg gcc tat aat gaa tac cct gac gac tct ctg gac ctg 635
Asp Pro Arg Leu Ala Tyr Asn Glu Tyr Pro Asp Asp Ser Leu Asp Leu
                    100                      105                      110

gac cca tcc atg ctg gac tcc atc tgg aaa cct gac ctg ttc ttt gcc 683
Asp Pro Ser Met Leu Asp Ser Ile Trp Lys Pro Asp Leu Phe Phe Ala
                    115                      120                      125

aac gag aag ggg gcc cac ttc cat gag atc acc aca gac aac aaa ttg 731
Asn Glu Lys Gly Ala His Phe His Glu Ile Thr Thr Asp Asn Lys Leu
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cta agg atc tcc cgg aat ggg aat gtc ctc tac agc atc aga atc acc 779
Leu Arg Ile Ser Arg Asn Gly Asn Val Leu Tyr Ser Ile Arg Ile Thr
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ctg aca ctg gcc tgc ccc atg gac ttg aag aat ttc ccc atg gat gtc 827
Leu Thr Leu Ala Cys Pro Met Asp Leu Lys Asn Phe Pro Met Asp Val
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Gln Thr Cys Ile Met Gln Leu Glu Ser Phe Gly Tyr Thr Met Asn Asp	
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ctc atc ttt gag tgg cag gaa cag gga gcc gtg cag gta gca gat gga	923
Leu Ile Phe Glu Trp Gln Glu Gln Gly Ala Val Gln Val Ala Asp Gly	
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cta act ctg ccc cag ttt atc ttg aag gaa gag aag gac ttg aga tac	971
Leu Thr Leu Pro Gln Phe Ile Leu Lys Glu Glu Lys Asp Leu Arg Tyr	
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tgc acc aag cac tac aac aca ggt aaa ttc acc tgc att gag gcc cgg	1019
Cys Thr Lys His Tyr Asn Thr Gly Lys Phe Thr Cys Ile Glu Ala Arg	
230 235 240	
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Phe His Leu Glu Arg Gln Met Gly Tyr Tyr Leu Ile Gln Met Tyr Ile	
245 250 255	
ccc agc ctg ctc att gtc atc ctc tca tgg atc tcc ttc tgg atc aac	1115
Pro Ser Leu Leu Ile Val Ile Leu Ser Trp Ile Ser Phe Trp Ile Asn	
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atg gat gct gca cct gct cgt gtg ggc cta ggc atc acc act gtg ctc	1163
Met Asp Ala Ala Pro Ala Arg Val Gly Leu Gly Ile Thr Thr Val Leu	
275 280 285	
acc atg acc acc cag agc tcc ggc tct cga gca tct ctg ccc aag gtg	1211
Thr Met Thr Thr Gln Ser Ser Gly Ser Arg Ala Ser Leu Pro Lys Val	
290 295 300 305	
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Ser Tyr Val Lys Ala Ile Asp Ile Trp Met Ala Val Cys Leu Leu Phe	
310 315 320	
gtg ttc tca gcc cta tta gaa tat gct gcc gtt aac ttt gtg tct cgg	1307
Val Phe Ser Ala Leu Leu Glu Tyr Ala Ala Val Asn Phe Val Ser Arg	
325 330 335	
caa cat aag gag ctg ctc cga ttc agg agg aag cgg aga cat cac aag	1355
Gln His Lys Glu Leu Leu Arg Phe Arg Arg Lys Arg Arg His His Lys	
340 345 350	
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Glu Asp Glu Ala Gly Glu Gly Arg Phe Asn Phe Ser Ala Tyr Gly Met	
355 360 365	
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Gly Pro Ala Cys Leu Gln Ala Lys Asp Gly Ile Ser Val Lys Gly Ala	
370 375 380 385	
aac aac agt aac acc acc aac ccc cct cct gca cca tct aag tcc cca	1499
Asn Asn Ser Asn Thr Thr Asn Pro Pro Pro Ala Pro Ser Lys Ser Pro	
390 395 400	
gag gag atg cga aaa ctc ttc atc cag agg gcc aag aag atc gac aaa	1547
Glu Glu Met Arg Lys Leu Phe Ile Gln Arg Ala Lys Lys Ile Asp Lys	
405 410 415	

ata tcc cgc att ggc ttc ccc atg gcc ttc ctc att ttc aac atg ttc 1595  
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 Tyr Trp Ile Ile Tyr Lys Ile Val Arg Arg Glu Asp Val His Asn Gln  
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caggaatctg agagacggt 1715

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 Thr Lys Pro Met Ser Pro Ser Asp Phe Leu Asp Lys Leu Met Gly Arg  
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 Thr Ser Gly Tyr Asp Ala Arg Ile Arg Pro Asn Phe Lys Gly Pro Pro  
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 Val Asn Val Ser Cys Asn Ile Phe Ile Asn Ser Phe Gly Ser Ile Ala  
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 Glu Thr Thr Met Asp Tyr Arg Val Asn Ile Phe Leu Arg Gln Gln Trp  
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 Asn Asp Pro Arg Leu Ala Tyr Asn Glu Tyr Pro Asp Asp Ser Leu Asp  
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 Leu Asp Pro Ser Met Leu Asp Ser Ile Trp Lys Pro Asp Leu Phe Phe  
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 Ala Asn Glu Lys Gly Ala His Phe His Glu Ile Thr Thr Asp Asn Lys  
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 Leu Leu Arg Ile Ser Arg Asn Gly Asn Val Leu Tyr Ser Ile Arg Ile  
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 Thr Leu Thr Leu Ala Cys Pro Met Asp Leu Lys Asn Phe Pro Met Asp  
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 Val Gln Thr Cys Ile Met Gln Leu Glu Ser Phe Gly Tyr Thr Met Asn  
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 Asp Leu Ile Phe Glu Trp Gln Glu Gln Gly Ala Val Gln Val Ala Asp  
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 Gly Leu Thr Leu Pro Gln Phe Ile Leu Lys Glu Glu Lys Asp Leu Arg  
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 Tyr Cys Thr Lys His Tyr Asn Thr Gly Lys Phe Thr Cys Ile Glu Ala  
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 Arg Phe His Leu Glu Arg Gln Met Gly Tyr Tyr Leu Ile Gln Met Tyr  
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 Ile Pro Ser Leu Leu Ile Val Ile Leu Ser Trp Ile Ser Phe Trp Ile  
           260                  265                  270  
 Asn Met Asp Ala Ala Pro Ala Arg Val Gly Leu Gly Ile Thr Thr Val  
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 Leu Thr Met Thr Thr Gln Ser Ser Gly Ser Arg Ala Ser Leu Pro Lys  
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 Val Ser Tyr Val Lys Ala Ile Asp Ile Trp Met Ala Val Cys Leu Leu  
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 Phe Val Phe Ser Ala Leu Leu Glu Tyr Ala Ala Val Asn Phe Val Ser



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Met	Gly	Pro	Ala	Cys	Leu	Gln	Ala	Lys	Asp	Gly	Ile	Ser	Val	Lys	Gly		
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Ala	Asn	Asn	Ser	Asn	Thr	Asn	Pro	Pro	Pro	Pro	Ala	Pro	Ser	Lys	Ser		
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Pro	Glu	Glu	Met	Arg	Lys	Leu	Phe	Ile	Gln	Arg	Ala	Lys	Lys	Ile	Asp		
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Lys	Ile	Ser	Arg	Ile	Gly	Phe	Pro	Met	Ala	Phe	Leu	Ile	Phe	Asn	Met		
		420					425						430				
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Gln																	

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 Leu Pro Arg Ala Leu Pro Arg Leu Pro Leu Leu Leu Leu Leu Leu  
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ctg cag ccc ccc gcc ctc tcc gcc gtg ttc acg gtg ggg gtc ctg ggc 253  
 Leu Gln Pro Pro Ala Leu Ser Ala Val Phe Thr Val Gly Val Leu Gly  
 45 50 55 60

ccc tgg gct tgc gac ccc atc ttc tct cgg gct cgc ccg gac ctg gcc 301  
 Pro Trp Ala Cys Asp Pro Ile Phe Ser Arg Ala Arg Pro Asp Leu Ala  
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gcc cgc ctg gcc gcc gcc cgc ctg aac cgc gac ccc ggc ctg gca ggc 349  
 Ala Arg Leu Ala Ala Ala Arg Leu Asn Arg Asp Pro Gly Leu Ala Gly  
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ggt ccc cgc ttc gag gta gcg ctg ctg ccc gag cct tgc cgg acg ccg 397  
 Gly Pro Arg Phe Glu Val Ala Leu Leu Pro Glu Pro Cys Arg Thr Pro  
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ggc tcg ctg ggg gcc gtg tcc tcc gcg ctg gcc cgc gtg tcg ggc ctc 445  
 Gly Ser Leu Gly Ala Val Ser Ser Ala Leu Ala Arg Val Ser Gly Leu  
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His	Ile	Arg	Asp	Ala	Gln	Val	Pro	Gly	Phe	Cys	Gly	Asp	Leu	Gly	Gly		
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Pro	Asp	Pro	Ser	Cys	Trp	Phe	Asp	Pro	Asn	Asn	Ile	Cys	Gly	Gly	Gly		
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Gly Gln Tyr Thr His Val Thr Cys Gly Gln Pro Ala Pro Asp Leu Arg  
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Asp	Asp	Asp	Ser	Leu	Phe	Pro	Ser	Ile	Pro	Asp	Ala	Phe	Trp	Trp
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Val	Val	Thr	Met	Thr	Thr	Val	Gly	Tyr	Gly	Asp	Met	Tyr	Pro	Met
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Val	Gly	Gly	Lys	Ile	Val	Gly	Ser	Leu	Cys	Ala	Ile	Ala	Gly	Val
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Thr	Ile	Ala	Leu	Pro	Val	Pro	Val	Ile	Val	Ser	Asn	Phe	Asn	Tyr
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Tyr	His	Arg	Glu	Thr	Glu	Gln	Glu	Glu	Gln	Gly	Gln	Tyr	Thr	His
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Gly	Lys	Pro	Asp	Phe	Pro	Glu	Ala	Asn	Arg	Glu	Arg	Arg	Pro	Ser
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 Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Pro  
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 Gly Pro Gly Ser Ala Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala  
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 Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu  
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 Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val  
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acc ctg ggc atg ttc cgg cca tgc gag gac atc gcc tgt gac tcc cag 336  
 Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln  
 100 105 110

cgc tgc cgg atc ctg cag gcc ttt gat gac ttc atc ttt gcc ttc ttt 384  
 Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe  
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gcc gtg gag atg gtg gtg aag atg gtg gcc ttg ggc atc ttt ggg aaa 432  
 Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys  
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 Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val  
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tca gct gtc agg aca gtc cgt gtg ctg cga ccg ctc agg gcc att aac 576  
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ttc ggc atc gtc ggc gtc cag ctg tgg gca ggg ctg ctt cgg aac cga Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg 225 230 235 240			720
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cgc tat tac cag aca gag aac gag gat gag agc ccc ttc atc tgc tcc Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser 260 265 270			816
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tat gag gag ctg ctc aag tac ctg gtg tac atc ctt cgt aag gca gcc Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ala 435 440 445			1344

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cac cac cac cac cat cac cac cac tac cac ctg ggc aat ggg acg ctc His His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu 500	505	510	1536
agg gcc ccc cgg gcc agc ccg gag atc cag gac agg gat gcc aat ggg Arg Ala Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly 515	520	525	1584
tcc cgc agg ctg atg ctg cca cca ccc tcg acg cct gcc ctg tcc ggg Ser Arg Arg Leu Met Leu Pro Pro Pro Ser Thr Pro Ala Leu Ser Gly 530	535	540	1632
gcc ccc cct ggt ggc gca gag tct gtg cac agc ttc tac cat gcc gac Ala Pro Pro Gly Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp 545	550	555	1680
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cca ccc ggg ccc tac agc tcc atg cac aag ctg ctg gag aca cag agt Pro Pro Gly Pro Tyr Ser Ser Met His Lys Leu Leu Glu Thr Gln Ser 625	630	635	1920
aca ggt gcc tgc caa agc tct tgc aag atc tcc agc cct tgc ttg aaa Thr Gly Ala Cys Gln Ser Ser Cys Lys Ile Ser Ser Pro Cys Leu Lys 645	650	655	1968
gca gac agt gga gcc tgt ggt cca gac agc tgc ccc tac tgt gcc cgg Ala Asp Ser Gly Ala Cys Gly Pro Asp Ser Cys Pro Tyr Cys Ala Arg 660	665	670	2016
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Pro Ala Leu Gln Arg Gln Leu Val Val Leu Met Lys Thr Met Asp Asn	
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Gly Asp Thr Leu Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala	
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915 920 925	



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Gly Gly Asp Ala Asn Lys Ser Glu Ser Glu Pro Asp Phe Phe Ser Pro	
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Gly	Lys	Ser	Ala	Ser	Gly	Arg	Leu	Ala	Arg	Ala	Leu	Arg	Pro	Asp	Asp		
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ccc	cca	ctg	gat	ggg	gat	gac	gcc	gat	gac	gag	ggc	aac	ctg	agc	aaa	3696	
Pro	Pro	Leu	Asp	Gly	Asp	Asp	Ala	Asp	Asp	Glu	Gly	Asn	Leu	Ser	Lys		
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ggg	gaa	cgg	gtc	cgc	gcg	tgg	atc	cga	gcc	cga	ctc	cct	gcc	tgc	tgc	3744	
Gly	Glu	Arg	Val	Arg	Ala	Trp	Ile	Arg	Ala	Arg	Leu	Pro	Ala	Cys	Cys		
		1235					1240					1245					
ctc	gag	cga	gac	tcc	tgg	tca	gcc	tac	atc	ttc	cct	cct	cag	tcc	agg	3792	
Leu	Glu	Arg	Asp	Ser	Trp	Ser	Ala	Tyr	Ile	Phe	Pro	Pro	Gln	Ser	Arg		
	1250					1255					1260						
ttc	cgc	ctc	ctg	tgt	cac	cgg	atc	atc	acc	cac	aag	atg	ttc	gac	cac	3840	
Phe	Arg	Leu	Leu	Cys	His	Arg	Ile	Ile	Thr	His	Lys	Met	Phe	Asp	His		
1265					1270				1275						1280		
gtg	gtc	ctt	gtc	atc	atc	ttc	ctt	aac	tgc	atc	acc	atc	gcc	atg	gag	3888	
Val	Val	Leu	Val	Ile	Ile	Phe	Leu	Asn	Cys	Ile	Thr	Ile	Ala	Met	Glu		
				1285					1290				1295				
cgc	ccc	aaa	att	gac	ccc	cac	agc	gct	gaa	cgc	atc	ttc	ctg	acc	ctc	3936	
Arg	Pro	Lys	Ile	Asp	Pro	His	Ser	Ala	Glu	Arg	Ile	Phe	Leu	Thr	Leu		
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tcc	aat	tac	atc	ttc	acc	gca	gtc	ttt	ctg	gct	gaa	atg	aca	gtg	aag	3984	
Ser	Asn	Tyr	Ile	Phe	Thr	Ala	Val	Phe	Leu	Ala	Glu	Met	Thr	Val	Lys		
		1315					1320				1325						
gtg	gtg	gca	ctg	ggc	tgg	tgc	ttc	ggg	gag	cag	gcg	tac	ctg	cgg	agc	4032	
Val	Val	Ala	Leu	Gly	Trp	Cys	Phe	Gly	Glu	Gln	Ala	Tyr	Leu	Arg	Ser		
		1330				1335					1340						
agt	tgg	aac	gtg	ctg	gac	ggg	ctg	ttg	gtg	ctc	atc	tcc	gtc	atc	gac	4080	
Ser	Trp	Asn	Val	Leu	Asp	Gly	Leu	Leu	Val	Leu	Ile	Ser	Val	Ile	Asp		
1345					1350					1355					1360		
att	ctg	gtg	tcc	atg	gtc	tct	gac	agc	ggc	acc	aag	atc	ctg	ggc	atg	4128	
Ile	Leu	Val	Ser	Met	Val	Ser	Asp	Ser	Gly	Thr	Lys	Ile	Leu	Gly	Met		
				1365					1370					1375			
ctg	agg	gtg	ctg	cgg	ctg	ctg	cgg	acc	ctg	cgc	ccg	ctc	agg	gtg	atc	4176	
Leu	Arg	Val	Leu	Arg	Leu	Leu	Arg	Thr	Leu	Arg	Pro	Leu	Arg	Val	Ile		
			1380					1385					1390				
agc	cgg	gcg	cag	ggg	ctg	aag	ctg	gtg	gtg	gag	acg	ctg	atg	tcc	tca	4224	
Ser	Arg	Ala	Gln	Gly	Leu	Lys	Leu	Val	Val	Glu	Thr	Leu	Met	Ser	Ser		
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ctg	aaa	ccc	atc	ggc	aac	att	gta	gtc	atc	tgc	tgt	gcc	ttc	ttc	atc	4272	
Leu	Lys	Pro	Ile	Gly	Asn	Ile	Val	Val	Ile	Cys	Cys	Ala	Phe	Phe	Ile		

1410	1415	1420	
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Ile Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Val			
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tgc cag ggc gag gat acc agg aac atc acc aat aaa tcg gac tgt gcc			4368
Cys Gln Gly Glu Asp Thr Arg Asn Ile Thr Asn Lys Ser Asp Cys Ala			
	1445	1450	1455
gag gcc agt tac cgg tgg gtc cgg cac aag tac aac ttt gac aac ctt			4416
Glu Ala Ser Tyr Arg Trp Val Arg His Lys Tyr Asn Phe Asp Asn Leu			
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ggc cag gcc ctg atg tcc ctg ttc gtt ttg gcc tcc aag gat ggt tgg			4464
Gly Gln Ala Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp			
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gtg gac atc atg tac gat ggg ctg gat gct gtg ggc gtg gac cag cag			4512
Val Asp Ile Met Tyr Asp Gly Leu Asp Ala Val Gly Val Asp Gln Gln			
	1490	1495	1500
ccc atc atg aac cac aac ccc tgg atg ctg ctg tac ttc atc tcg ttc			4560
Pro Ile Met Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe			
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ctg ctc att gtg gcc ttc ttt gtc ctg aac atg ttt gtg ggt gtg gtg			4608
Leu Leu Ile Val Ala Phe Phe Val Leu Asn Met Phe Val Gly Val Val			
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gtg gag aac ttc cac aag tgt cgg cag cac cag gag gaa gag gag gcc			4656
Val Glu Asn Phe His Lys Cys Arg Gln His Gln Glu Glu Glu Ala			
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cgg cgg cgg gag gag aag cgc cta cga aga ctg gag aaa aag aga agg			4704
Arg Arg Arg Glu Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg			
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aat cta atg ctg gac gat gta att gct tcc ggc agc tca gcc agc gct			4752
Asn Leu Met Leu Asp Asp Val Ile Ala Ser Gly Ser Ser Ala Ser Ala			
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gcg tca gaa gcc cag tgc aaa cct tac tac tcc gac tac tcc cgc ttc			4800
Ala Ser Glu Ala Gln Cys Lys Pro Tyr Tyr Ser Asp Tyr Ser Arg Phe			
	1585	1590	1600
cgg ctc ctc gtc cac cac ttg tgc acc agc cac tac ctg gac ctc ttc			4848
Arg Leu Leu Val His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe			
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atc aca ggt gtc atc ggg ctg aac gtg gtc acc atg gcc atg gag cac			4896
Ile Thr Gly Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu His			
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tac cag cag ccc cag att ctg gat gag gct ctg aag atc tgc aac tac			4944
Tyr Gln Gln Pro Gln Ile Leu Asp Glu Ala Leu Lys Ile Cys Asn Tyr			
	1635	1640	1645
atc ttc act gtc atc ttt gtc ttg gag tca gtt ttc aaa ctt gtg gcc			4992
Ile Phe Thr Val Ile Phe Val Leu Glu Ser Val Phe Lys Leu Val Ala			

1650	1655	1660	
ttt ggt ttc cgt cgg ttc ttc cag gac agg tgg aac cag ctg gac ctg			5040
Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Asn Gln Leu Asp Leu			
1665	1670	1675	1680
gcc att gtg ctg ctg tcc atc atg ggc atc acg ctg gag gaa atc gag			5088
Ala Ile Val Leu Leu Ser Ile Met Gly Ile Thr Leu Glu Glu Ile Glu			
	1685	1690	1695
gtc aac gcc tcg ctg ccc atc aac ccc acc atc atc cgc atc atg agg			5136
Val Asn Ala Ser Leu Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg			
	1700	1705	1710
gtg ctg cgc att gcc cga gtg ctg aag ctg ctg aag atg gct gtg ggc			5184
Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu Lys Met Ala Val Gly			
	1715	1720	1725
atg cgg gcg ctg ctg gac acg gtg atg cag gcc ctg ccc cag gtg ggg			5232
Met Arg Ala Leu Leu Asp Thr Val Met Gln Ala Leu Pro Gln Val Gly			
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aac ctg gga ctt ctc ttc atg ttg ttg ttt ttc atc ttt gca gct ctg			5280
Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala Ala Leu			
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ggc gtg gag ctc ttt gga gac ctg gag tgt gac gag aca cac ccc tgt			5328
Gly Val Glu Leu Phe Gly Asp Leu Glu Cys Asp Glu Thr His Pro Cys			
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gag ggc ctg ggc cgt cat gcc acc ttt cgg aac ttt ggc atg gcc ttc			5376
Glu Gly Leu Gly Arg His Ala Thr Phe Arg Asn Phe Gly Met Ala Phe			
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cta acc ctc ttc cga gtc tcc aca ggt gac aat tgg aat ggc att atg			5424
Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met			
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aag gac acc ctc cgg gac tgt gac cag gag tcc acc tgc tac aac acg			5472
Lys Asp Thr Leu Arg Asp Cys Asp Gln Glu Ser Thr Cys Tyr Asn Thr			
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gtc atc tcg cct atc tac ttt gtg tcc ttc gtg ctg acg gcc cag ttc			5520
Val Ile Ser Pro Ile Tyr Phe Val Ser Phe Val Leu Thr Ala Gln Phe			
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Val Leu Val Asn Val Val Ile Ala Val Leu Met Lys His Leu Glu Glu			
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Ser Asn Lys Glu Ala Lys Glu Glu Ala Glu Leu Glu Ala Glu Leu Glu			
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ctg gag atg aag acc ctc agc ccc cag ccc cac tcg cca ctg ggc agc			5664
Leu Glu Met Lys Thr Leu Ser Pro Gln Pro His Ser Pro Leu Gly Ser			
	1875	1880	1885
ccc ttc ctc tgg cct ggg gtc gag ggc ccc gac agc ccc gac agc ccc			5712
Pro Phe Leu Trp Pro Gly Val Glu Gly Pro Asp Ser Pro Asp Ser Pro			

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ttt tcc ctg gag Phe Ser Leu Glu 1925	cac ccc acg gac agg His Pro Thr Asp Arg 1925 1930	cag ctg ttt gac acc ata tcc Gln Leu Phe Asp Thr Ile Ser 1930 1935	5808
ctg ctg atc cag ggc tcc Leu Leu Ile Gln Gly Ser 1940	ctg gag tgg gag Leu Glu Trp Glu 1945	ctg aag ctg atg gac gag Leu Lys Leu Met Asp Glu 1950	5856
ctg gca ggc cca ggg ggc Leu Ala Gly Pro Gly Gly 1955	cag ccc tct gcc ttc cct Gln Pro Ser Ala Phe Pro 1960 1965	tct gac ccc agc Ser Ala Pro Ser 1965	5904
ctg gga ggc tcc gac Leu Gly Gly Ser Asp 1970	cca cag atc cct cta Pro Gln Ile Pro Leu 1975 1980	gct gag atg gag gct ctg Ala Glu Met Glu Ala Leu 1980	5952
tct ctg acg tca gag Ser Leu Thr Ser Glu 1985	att gtg tct gaa ccg Ile Val Ser Glu Pro 1990 1995	tgc tct cta gct ctg Ser Cys Ser Leu Ala Leu 1995 2000	6000
acg gat gac tct ttg Thr Asp Asp Ser 2005	cct gat gac atg Pro Asp Asp Met 2010	aca ctc tta ctt agt gcc Thr Leu Leu Leu Ser Ala 2015	6048
ctg gag agc aat atg Leu Glu Ser Asn Met 2020	cag ccc cac ccc Gln Pro His Pro 2025	acg gag ctg cca gga cca gac Glu Leu Pro Gly Pro Asp 2030	6096
tta ctg act gtg cgg Leu Leu Thr Val Arg 2035	aag tct ggg gtc Lys Ser Gly Val 2040	agc cga acg cac tct ctg ccc Ser Arg Thr His Ser Leu Pro 2045	6144
aat gac agc tac atg Asn Asp Ser Tyr Met 2050	tgt cgg cat ggg Cys Arg His Gly 2055	agc act gcc gag ggg ccc ctg Ser Thr Ala Glu Gly Pro Leu 2060	6192
gga cac agg ggc tgg Gly His Arg Gly Trp 2065	ggg ggc ctc ccc Gly Leu Pro Lys 2070	aaa gct cag tca ggc tcc gtc ttg Ala Gln Ser Gly Ser Val Leu 2075 2080	6240
tcc gtt cac tcc cag Ser Val His Ser 2085	cca gca gat acc Pro Ala Asp Thr 2090	agc tac atc ctg cag ctt ccc Ser Tyr Ile Leu Gln Leu Pro 2095	6288
aaa gat gca cct cat Lys Asp Ala Pro His 2100	ctg ctc cag ccc Leu Leu Gln Pro 2105	cac agc gcc cca acc tgg ggc His Ser Ala Pro Thr Trp Gly 2110	6336
acc atc ccc aaa ctg Thr Ile Pro Lys Leu 2115	ccc cca cca gga Pro Pro Gly Arg 2120	cgc tcc cct ttg gct cag agg Ser Pro Leu Ala Gln Arg 2125	6384
cca ctc agg cgc cag Pro Leu Arg Arg 2130	gca gca ata agg Ala Ala Ile Arg 2135	act gac tcc ttg gac gtt cag Thr Asp Ser Leu Asp Val Gln 2140	6432

2130	2135	2140	
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gca cag cag cac tcc cgc agc cac agc aag atc tcc aag cac atg acc Ala Gln Gln His Ser Arg Ser His Ser Lys Ile Ser Lys His Met Thr 2180 2185 2190			6576
ccg cca gcc cct tgc cca ggc cca gaa ccc aac tgg ggc aag ggc cct Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro 2195 2200 2205			6624
cca gag acc aga agc agc tta gag ttg gac acg gag ctg agc tgg att Pro Glu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp Ile 2210 2215 2220			6672
tca gga gac ctc ctg ccc cct ggc ggc cag gag gag ccc cca tcc cca Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro 2225 2230 2235 2240			6720
cgg gac ctg aag aag tgc tac agc gtg gag gcc cag agc tgc cag cgc Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg 2245 2250 2255			6768
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agc tgc ctg gac agc ggc tcc caa ccc cac ctg ggc aca gac ccc tct Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu Gly Thr Asp Pro Ser 2275 2280 2285			6864
aac ctt ggg ggc cag cct ctt ggg ggg cct ggg agc cgg ccc aag aaa Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys 2290 2295 2300			6912
aaa ctc agc ccg cct agt atc acc ata gac ccc ccc gag agc caa ggt Lys Leu Ser Pro Pro Ser Ile Thr Ile Asp Pro Pro Glu Ser Gln Gly 2305 2310 2315 2320			6960
cct cgg acc ccg ccc agc cct ggt atc tgc ctc cgg agg agg gct ccg Pro Arg Thr Pro Pro Ser Pro Gly Ile Cys Leu Arg Arg Arg Ala Pro 2325 2330 2335			7008
tcc agc gac tcc aag gat ccc ttg gcc tct ggc ccc cct gac agc atg Ser Ser Asp Ser Lys Asp Pro Leu Ala Ser Gly Pro Pro Asp Ser Met 2340 2345 2350			7056
gct gcc tcg ccc tcc cca aag aaa gat gtg ctg agt ctc tcc ggt tta Ala Ala Ser Pro Ser Pro Lys Lys Asp Val Leu Ser Leu Ser Gly Leu 2355 2360 2365			7104
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2370 2375			

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35     40     45
Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu
50     55     60
Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn
65     70     75     80
Pro Trp Phe Glu Arg Ile Ser Met Leu Val Ile Leu Leu Asn Cys Val
85     90     95
Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Gln
100    105    110
Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe
115    120    125
Ala Val Glu Met Val Val Lys Met Val Ala Leu Gly Ile Phe Gly Lys
130    135    140
Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe Phe Ile Val
145    150    155    160
Ile Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asn Val Ser Phe
165    170    175
Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
180    185    190
Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Asp Thr Leu
195    200    205
Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Phe Phe Ile
210    215    220
Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu Arg Asn Arg
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Cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Leu Ser Val Asp Leu Glu
245    250    255
Arg Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Ile Cys Ser
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Gln Pro Arg Glu Asn Gly Met Arg Ser Cys Arg Ser Val Pro Thr Leu
275    280    285
Arg Gly Asp Gly Gly Gly Gly Pro Pro Cys Gly Leu Asp Tyr Glu Ala
290    295    300
Tyr Asn Ser Ser Ser Asn Thr Thr Cys Val Asn Trp Asn Gln Tyr Tyr
305    310    315    320
Thr Asn Cys Ser Ala Gly Glu His Asn Pro Phe Lys Gly Ala Ile Asn
325    330    335
Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Gln Val Ile Thr
340    345    350

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Leu	Glu	Gly	Trp	Val	Asp	Ile	Met	Tyr	Phe	Val	Met	Asp	Ala	His	Ser
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	370					375					380				
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385					390					395					400
Thr	Lys	Gln	Arg	Glu	Ser	Gln	Leu	Met	Arg	Glu	Gln	Arg	Val	Arg	Phe
				405					410					415	
Leu	Ser	Asn	Ala	Ser	Thr	Leu	Ala	Ser	Phe	Ser	Glu	Pro	Gly	Ser	Cys
			420					425					430		
Tyr	Glu	Glu	Leu	Leu	Lys	Tyr	Leu	Val	Tyr	Ile	Leu	Arg	Lys	Ala	Ala
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465					470					475					480
Ser	Cys	Ser	Arg	Ser	His	Arg	Arg	Leu	Ser	Val	His	His	Leu	Val	His
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His	His	His	His	His	His	His	His	Tyr	His	Leu	Gly	Asn	Gly	Thr	Leu
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Arg	Ala	Pro	Arg	Ala	Ser	Pro	Glu	Ile	Gln	Asp	Arg	Asp	Ala	Asn	Gly
	515						520					525			
Ser	Arg	Arg	Leu	Met	Leu	Pro	Pro	Pro	Ser	Thr	Pro	Ala	Leu	Ser	Gly
	530					535					540				
Ala	Pro	Pro	Gly	Gly	Ala	Glu	Ser	Val	His	Ser	Phe	Tyr	His	Ala	Asp
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Cys	His	Leu	Glu	Pro	Val	Arg	Cys	Gln	Ala	Pro	Pro	Pro	Arg	Ser	Pro
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Ser	Glu	Ala	Ser	Gly	Arg	Thr	Val	Gly	Ser	Gly	Lys	Val	Tyr	Pro	Thr
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Val	His	Thr	Ser	Pro	Pro	Pro	Glu	Thr	Leu	Lys	Glu	Lys	Ala	Leu	Val
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Glu	Val	Ala	Ala	Ser	Ser	Gly	Pro	Pro	Thr	Leu	Thr	Ser	Leu	Asn	Ile
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Pro	Pro	Gly	Pro	Tyr	Ser	Ser	Met	His	Lys	Leu	Leu	Glu	Thr	Gln	Ser
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Thr	Gly	Ala	Cys	Gln	Ser	Ser	Cys	Lys	Ile	Ser	Ser	Pro	Cys	Leu	Lys
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Ala	Asp	Ser	Gly	Ala	Cys	Gly	Pro	Asp	Ser	Cys	Pro	Tyr	Cys	Ala	Arg
			660					665					670		
Ala	Gly	Ala	Gly	Glu	Val	Glu	Leu	Ala	Asp	Arg	Glu	Met	Pro	Asp	Ser
			675				680					685			
Asp	Ser	Glu	Ala	Val	Tyr	Glu	Phe	Thr	Gln	Asp	Ala	Gln	His	Ser	Asp
	690					695					700				
Leu	Arg	Asp	Pro	His	Ser	Arg	Arg	Gln	Arg	Ser	Leu	Gly	Pro	Asp	Ala
705					710					715					720
Glu	Pro	Ser	Ser	Val	Leu	Ala	Phe	Trp	Arg	Leu	Ile	Cys	Asp	Thr	Phe
				725					730					735	
Arg	Lys	Ile	Val	Asp	Ser	Lys	Tyr	Phe	Gly	Arg	Gly	Ile	Met	Ile	Ala
			740					745					750		
Ile	Leu	Val	Asn	Thr	Leu	Ser	Met	Gly	Ile	Glu	Tyr	His	Glu	Gln	Pro
		755					760						765		
Glu	Glu	Leu	Thr	Asn	Ala	Leu	Glu	Ile	Ser	Asn	Ile	Val	Phe	Thr	Ser
	770					775						780			
Leu	Phe	Ala	Leu	Glu	Met	Leu	Leu	Lys	Leu	Leu	Val	Tyr	Gly	Pro	Phe
785					790					795					800
Gly	Tyr	Ile	Lys	Asn	Pro	Tyr	Asn	Ile	Phe	Asp	Gly	Val	Ile	Val	Val
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Val Val Ala Leu Gly Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser  
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Val Glu Asn Phe His Lys Cys Arg Gln His Gln Glu Glu Glu Glu Ala  
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Pro Phe Leu Trp Pro Gly Val Glu Gly Pro Asp Ser Pro Asp Ser Pro		1885
	1890	1895
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Ser Gly Asp Leu Leu Pro Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro		2220
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Ser Cys Leu Asp Ser Gly Ser Gln Pro His Leu Gly Thr Asp Pro Ser		2270
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Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys		2285
2290	2295	2300

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 Met Ala Arg Gly Ser Ala Leu Pro Arg Arg Pro  
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 Leu Leu Cys Ile Pro Ala Val Trp Ala Ala Ala Ala Leu Leu Leu Ser  
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 Val Ser Arg Thr Ser Gly Glu Val Glu Val Leu Asp Pro Asn Asp Pro  
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 tta gga ccc ctt gat ggg cag gac ggc ccg att cca act ctg aaa ggt 376  
 Leu Gly Pro Leu Asp Gly Gln Asp Gly Pro Ile Pro Thr Leu Lys Gly  
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 tac ttt ctg aat ttt ctg gag cca gta aac aat atc acc att gtc caa 424  
 Tyr Phe Leu Asn Phe Leu Glu Pro Val Asn Asn Ile Thr Ile Val Gln  
 60 65 70 75  
  
 ggc cag acg gca att ctg cac tgc aag gtg gca gga aac cca ccc cct 472  
 Gly Gln Thr Ala Ile Leu His Cys Lys Val Ala Gly Asn Pro Pro Pro  
 80 85 90  
  
 aac gtg cgg tgg cta aag aat gat gcc ccg gtg gtg cag gag ccg cgg 520  
 Asn Val Arg Trp Leu Lys Asn Asp Ala Pro Val Val Gln Glu Pro Arg  
 95 100 105  
  
 cgg atc atc atc cgg aag aca gaa tat ggt tca cga ctg cga atc cag 568  
 Arg Ile Ile Ile Arg Lys Thr Glu Tyr Gly Ser Arg Leu Arg Ile Gln  
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 Asp Leu Asp Thr Thr Asp Thr Gly Tyr Tyr Gln Cys Val Ala Thr Asn  
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Gly Met Lys Thr Ile Thr Ala Thr Gly Val Leu Phe Val Arg Leu Gly	
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Pro Thr His Ser Pro Asn His Asn Phe Gln Asp Asp Tyr His Glu Asp	
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Gly Phe Cys Gln Pro Tyr Arg Gly Ile Ala Cys Ala Arg Phe Ile Gly	
175 180 185	
aac cgg acc att tat gtg gac tcg ctt cag atg cag ggg gag att gaa	808
Asn Arg Thr Ile Tyr Val Asp Ser Leu Gln Met Gln Gly Glu Ile Glu	
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Asn Arg Ile Thr Ala Ala Phe Thr Met Ile Gly Thr Ser Thr His Leu	
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Ser Asp Gln Cys Ser Gln Phe Ala Ile Pro Ser Phe Cys His Phe Val	
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Phe Pro Leu Cys Asp Ala Arg Ser Arg Ala Pro Lys Pro Arg Glu Leu	
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Cys Arg Asp Glu Cys Glu Val Leu Glu Ser Asp Leu Cys Arg Gln Glu	
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Tyr Thr Ile Ala Arg Ser Asn Pro Leu Ile Leu Met Arg Leu Gln Leu	
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Pro Lys Cys Glu Ala Leu Pro Met Pro Glu Ser Pro Asp Ala Ala Asn	
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Cys Met Arg Ile Gly Ile Pro Ala Glu Arg Leu Gly Arg Tyr His Gln	
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Cys Tyr Asn Gly Ser Gly Met Asp Tyr Arg Gly Thr Ala Ser Thr Thr	
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Lys Ser Gly His Gln Cys Gln Pro Trp Ala Leu Gln His Pro His Ser	
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Tyr Cys Arg Asn Pro Gly Gly Gln Met Glu Gly Pro Trp Cys Phe Thr	
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Gln	Asn	Lys	Asn	Val	Arg	Met	Glu	Leu	Cys	Asp	Val	Pro	Ser	Cys	Ser		
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ccc	cga	gac	agc	agc	aag	atg	ggg	att	ctg	tac	atc	ttg	gtc	ccc	agc		1432
Pro	Arg	Asp	Ser	Ser	Lys	Met	Gly	Ile	Leu	Tyr	Ile	Leu	Val	Pro	Ser		
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Ile	Ala	Ile	Pro	Leu	Val	Ile	Ala	Cys	Leu	Phe	Phe	Leu	Val	Cys	Met		
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tgc	cgg	aat	aag	cag	aag	gca	tct	gcg	tcc	aca	ccg	cag	cgg	cga	cag		1528
Cys	Arg	Asn	Lys	Gln	Lys	Ala	Ser	Ala	Ser	Thr	Pro	Gln	Arg	Arg	Gln		
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ctg	atg	gcc	tcg	ccc	agc	caa	gac	atg	gaa	atg	ccc	ctc	att	aac	cag		1576
Leu	Met	Ala	Ser	Pro	Ser	Gln	Asp	Met	Glu	Met	Pro	Leu	Ile	Asn	Gln		
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cac	aaa	cag	gcc	aaa	ctc	aaa	gag	atc	agc	ctg	tct	gcg	gtg	agg	ttc		1624
His	Lys	Gln	Ala	Lys	Leu	Lys	Glu	Ile	Ser	Leu	Ser	Ala	Val	Arg	Phe		
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atg	gag	gag	ctg	gga	gag	gac	cgg	ttt	ggg	aaa	gtc	tac	aaa	ggt	cac		1672
Met	Glu	Glu	Leu	Gly	Glu	Asp	Arg	Phe	Gly	Lys	Val	Tyr	Lys	Gly	His		
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ctg	ttc	ggc	cct	gcc	ccg	ggg	gag	cag	acc	cag	gct	gtg	gcc	atc	aaa		1720
Leu	Phe	Gly	Pro	Ala	Pro	Gly	Glu	Gln	Thr	Gln	Ala	Val	Ala	Ile	Lys		
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Thr	Leu	Lys	Asp	Lys	Ala	Glu	Gly	Pro	Leu	Arg	Glu	Glu	Phe	Arg	His		
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Glu	Ala	Met	Leu	Arg	Ala	Arg	Leu	Gln	His	Pro	Asn	Val	Val	Cys	Leu		
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Cys	Ser	His	Gly	Asp	Leu	His	Glu	Phe	Leu	Val	Met	Arg	Ser	Pro	His		
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Ser	Asp	Val	Gly	Ser	Thr	Asp	Asp	Asp	Arg	Thr	Val	Lys	Ser	Ala	Leu		
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Glu	Tyr	Leu	Ser	Ser	His	His	Val	Val	His	Lys	Asp	Leu	Ala	Thr	Arg		
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Lys Phe Ser Ile Asp Ser Asp Ile Trp Ser Tyr Gly Val Val Leu Trp	
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Glu Val Phe Ser Tyr Gly Leu Gln Pro Tyr Cys Gly Tyr Ser Asn Gln	
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Asp Val Val Glu Met Ile Arg Asn Arg Gln Val Leu Pro Cys Pro Asp	
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Asp Cys Pro Ala Trp Val Tyr Ala Leu Met Ile Glu Cys Trp Asn Glu	
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Ala Trp Gly Asn Leu Ser Asn Tyr Asn Ser Ser Ala Gln Thr Ser Gly	
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765 770 775	
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Met Gln Met Ala Pro Gln Gln Val Pro Pro Gln Met Val Pro Lys Pro	
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 Gly Gln Asp Gly Pro Ile Pro Thr Leu Lys Gly Tyr Phe Leu Asn Phe  
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 Leu His Cys Lys Val Ala Gly Asn Pro Pro Pro Asn Val Arg Trp Leu  
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Lys	Thr	Glu	Tyr	Gly	Ser	Arg	Leu	Arg	Ile	Gln	Asp	Leu	Asp	Thr	Thr
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Asp	Thr	Gly	Tyr	Tyr	Gln	Cys	Val	Ala	Thr	Asn	Gly	Met	Lys	Thr	Ile
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Asn	His	Asn	Phe	Gln	Asp	Asp	Tyr	His	Glu	Asp	Gly	Phe	Cys	Gln	Pro
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Tyr	Arg	Gly	Ile	Ala	Cys	Ala	Arg	Phe	Ile	Gly	Asn	Arg	Thr	Ile	Tyr
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Val	Asp	Ser	Leu	Gln	Met	Gln	Gly	Glu	Ile	Glu	Asn	Arg	Ile	Thr	Ala
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Glu	Asp	Arg	Phe	Gly	Lys	Val	Tyr	Lys	Gly	His	Leu	Phe	Gly	Pro	Ala
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Asn Tyr Pro Leu Ser Ile Ala Phe Ile Val Val Asn Glu Phe Cys Glu	
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cgc ttt tcc tat tat gga atg aaa gct gtg ctg atc ctg tat ttc ctg	246
Arg Phe Ser Tyr Tyr Gly Met Lys Ala Val Leu Ile Leu Tyr Phe Leu	
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Tyr Phe Leu His Trp Asn Glu Asp Thr Ser Thr Ser Ile Tyr His Ala	
75 80 85	
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Phe Ser Ser Leu Cys Tyr Phe Thr Pro Ile Leu Gly Ala Ala Ile Ala	
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Asp Ser Trp Leu Gly Lys Phe Lys Thr Ile Ile Tyr Leu Ser Leu Val	
105 110 115 120	
tat gtg ctt ggc cat gtg atc aag tcc ttg ggt gcc tta cca ata ctg	438
Tyr Val Leu Gly His Val Ile Lys Ser Leu Gly Ala Leu Pro Ile Leu	
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Gly Gly Gln Val Val His Thr Val Leu Ser Leu Ile Gly Leu Ser Leu	
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Ile Ala Leu Gly Thr Gly Gly Ile Lys Pro Cys Val Ala Ala Phe Gly	
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Ile Thr Pro Met Leu Arg Gly Asp Val Gln Cys Phe Gly Glu Asp Cys	
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Tyr Ala Leu Ala Phe Gly Val Pro Gly Leu Leu Met Val Ile Ala Leu	
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Val Val Phe Ala Met Gly Ser Lys Ile Tyr Asn Lys Pro Pro Pro Glu	
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Phe	Val	Ile	Tyr	Arg	Leu	Val	Ser	Lys	Cys	Gly	Ile	Asn	Phe	Ser	Ser		
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Leu	Arg	Lys	Met	Ala	Val	Gly	Met	Ile	Leu	Ala	Cys	Leu	Ala	Phe	Ala		
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Val	Ala	Ala	Arg	Val	Glu	Ile	Lys	Ile	Asn	Glu	Met	Ala	Pro	Ala	Gln		
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Pro	Gly	Pro	Gln	Glu	Val	Phe	Leu	Gln	Val	Leu	Asn	Leu	Ala	Asp	Asp		
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Glu	Val	Lys	Val	Thr	Val	Val	Gly	Asn	Glu	Asn	Asn	Ser	Leu	Leu	Ile		
425					430					435					440		
gag	tcc	atc	aaa	tcc	ttt	cag	aaa	aca	cca	cac	tat	tcc	aaa	ctg	cac	1398	
Glu	Ser	Ile	Lys	Ser	Phe	Gln	Lys	Thr	Pro	His	Tyr	Ser	Lys	Leu	His		
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Leu	Lys	Thr	Lys	Ser	Gln	Asp	Phe	His	Phe	His	Leu	Lys	Tyr	His	Asn		
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Leu	Ser	Leu	Tyr	Thr	Glu	His	Ser	Val	Gln	Glu	Lys	Asn	Trp	Tyr	Ser		
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aac act ttg cat aaa gat gtc aac atc tcc ctg agt aca gat acc tct Asn Thr Leu His Lys Asp Val Asn Ile Ser Leu Ser Thr Asp Thr Ser			1638
	525	530	535
ctc aat gtt ggt gaa gac tat ggt gtg tct gct tat aga act gtg caa Leu Asn Val Gly Glu Asp Tyr Gly Val Ser Ala Tyr Arg Thr Val Gln 540 545 550			1686
aga gga gaa tac cct gca gtg cac tgt aga aca gaa gat aag aac ttt Arg Gly Glu Tyr Pro Ala Val His Cys Arg Thr Glu Asp Lys Asn Phe 555 560 565			1734
tct ctg aat ttg ggt ctt cta gac ttt ggt gca gca tat ctg ttt gtt Ser Leu Asn Leu Gly Leu Leu Asp Phe Gly Ala Ala Tyr Leu Phe Val 570 575 580			1782
att act aat aac acc aat cag ggt ctt cag gcc tgg aag att gaa gac Ile Thr Asn Asn Thr Asn Gln Gly Leu Gln Ala Trp Lys Ile Glu Asp 585 590 595 600			1830
att cca gcc aac aaa atg tcc att cgg tgg cag cta cca caa tat gcc Ile Pro Ala Asn Lys Met Ser Ile Arg Trp Gln Leu Pro Gln Tyr Ala 605 610 615			1878
ctg gtt aca gct ggg gag gtc atg ttc tct gtc aca ggt ctt gag ttt Leu Val Thr Ala Gly Glu Val Met Phe Ser Val Thr Gly Leu Glu Phe 620 625 630			1926
tct tat tct cag gct ccc tct agc atg aaa tct gtg ctc cag gca gct Ser Tyr Ser Gln Ala Pro Ser Ser Met Lys Ser Val Leu Gln Ala Ala 635 640 645			1974
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cag ttc agt ggc ctg gta cag tgg gcc gaa ttc att ttg ttt tcc tgc Gln Phe Ser Gly Leu Val Gln Trp Ala Glu Phe Ile Leu Phe Ser Cys 665 670 675 680			2070
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gtt cct gta aag aca gag gat atg cgg ggt cca gca gat aag cac att Val Pro Val Lys Thr Glu Asp Met Arg Gly Pro Ala Asp Lys His Ile 700 705 710			2166
cct cac atc cag ggg aac atg atc aaa cta gag acc aag aag aca aaa Pro His Ile Gln Gly Asn Met Ile Lys Leu Glu Thr Lys Lys Thr Lys 715 720 725			2214
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Leu	Ala	Lys	Leu	Leu	Pro	Leu	Leu	Met	Ala	Gln	Leu	Trp	Ala	Ala	Glu	
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Ala	Ala	Leu	Leu	Pro	Gln	Asn	Asp	Thr	Arg	Leu	Asp	Pro	Glu	Ala	Tyr	
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Gly	Ala	Pro	Cys	Ala	Arg	Gly	Ser	Gln	Pro	Trp	Gln	Val	Ser	Leu	Phe	
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Val	Leu	Thr	Ala	Ala	His	Cys	Gly	Asn	Lys	Pro	Leu	Trp	Ala	Arg	Val	
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Gly	Asp	Asp	His	Leu	Leu	Leu	Leu	Gln	Gly	Glu	Gln	Leu	Arg	Arg	Thr	
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Thr	Arg	Ser	Val	Val	His	Pro	Lys	Tyr	His	Gln	Gly	Ser	Gly	Pro	Ile	
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Leu	Pro	Arg	Arg	Thr	Asp	Glu	His	Asp	Leu	Met	Leu	Leu	Lys	Leu	Ala	
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Arg	Cys	Ala	Gln	Pro	Gly	Asp	Gln	Cys	Gln	Val	Ala	Gly	Trp	Gly	Thr	
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Thr	Ala	Ala	Arg	Arg	Val	Lys	Tyr	Asn	Lys	Gly	Leu	Thr	Cys	Ser	Ser	
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Ile	Thr	Ile	Leu	Ser	Pro	Lys	Glu	Cys	Glu	Val	Phe	Tyr	Pro	Gly	Val	
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Val	Thr	Asn	Asn	Met	Ile	Cys	Ala	Gly	Leu	Asp	Arg	Gly	Gln	Asp	Pro	
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Cys	Gln	Ser	Asp	Ser	Gly	Gly	Pro	Leu	Val	Cys	Asp	Glu	Thr	Leu	Gln	
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Ala Val Tyr Thr Gln Ile Cys Lys Tyr Met Ser Trp Ile Asn Lys Val						
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Ile Arg Ser Asn *						
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			85													
Gly Asp Asp His Leu Leu Leu Leu Gln Gly Glu Gln Leu Arg Arg Thr								105						110		
			100													
Thr Arg Ser Val Val His Pro Lys Tyr His Gln Gly Ser Gly Pro Ile							120						125			
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Arg Pro Val Val Pro Gly Pro Arg Val Arg Ala Leu Gln Leu Pro Tyr					150					155						160
	145															
Arg Cys Ala Gln Pro Gly Asp Gln Cys Gln Val Ala Gly Trp Gly Thr									170						175	
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agttggccag a atg acc aac tcc tcc tcc aca tcc acc tcc tcc acc acc 230
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Gly Gly Ser Leu Leu Leu Leu Cys Glu Glu Glu Glu Ser Trp Ala Gly
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Arg Arg Ile Pro Val Ser Leu Leu Tyr Ser Gly Leu Ala Ile Gly Gly
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Gly Ser Tyr Arg Leu Leu Arg Gly Gly Leu Leu Gly Leu Gly Leu Thr
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ctg ctg ctc ccg ccc tgg gca ccg cgg ccc ggc gcc gcg cca ccg cga 758
Leu Leu Leu Pro Pro Trp Ala Pro Arg Pro Gly Ala Ala Pro Pro Arg
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gtc cac tac ccg gcg ctg ctg gcc gcc gcg gcg ctg ctg gcg cag aca 806
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Ser Val Lys Arg Val Ser Val Leu Asn Phe His Leu Leu His Gln Leu	225	230	235	
ccc ggc tgc gcc gcc gcc gcc gcc gcc ttc ccg ggc gcc cag cac gcg				950
Pro Gly Cys Ala Ala Ala Ala Ala Ala Phe Pro Gly Ala Gln His Ala	240	245	250	
ccg ggc ccc ggt ggc gcc gcg cac ccg gcg cag gcc cag ccc ctg ccg				998
Pro Gly Pro Gly Gly Ala Ala His Pro Ala Gln Ala Gln Pro Leu Pro	255	260	265	
ccc gcg ctg cac ccg cgg cgg gca cag cgg cgt ctc agc ggc ctg tcg				1046
Pro Ala Leu His Pro Arg Arg Ala Gln Arg Arg Leu Ser Gly Leu Ser	270	275	280	285
gtg ctg ctg ctc tgc tgc gtc ttc ctg ctg gcc acg cag cca ctg gtg				1094
Val Leu Leu Leu Cys Cys Val Phe Leu Leu Ala Thr Gln Pro Leu Val	290	295	300	
tgg gtg agc ctg gcc agc ggc ttc tcg ctg ccg gtg ccc tgg gga gtg				1142
Trp Val Ser Leu Ala Ser Gly Phe Ser Leu Pro Val Pro Trp Gly Val	305	310	315	
cag gcg gcc agc tgg ctc ctg tgc tgc gcc ctg tcc gcg ctc aat ccg				1190
Gln Ala Ala Ser Trp Leu Leu Cys Cys Ala Leu Ser Ala Leu Asn Pro	320	325	330	
ctg ctc tac acg tgg agg aac gag gag ttc cgc cgc tcc gtg cgc tca				1238
Leu Leu Tyr Thr Trp Arg Asn Glu Glu Phe Arg Arg Ser Val Arg Ser	335	340	345	
gtc ctg ccg ggc gtc ggc gac gcg gcg gcc gct gcc gtt gcc gcc aca				1286
Val Leu Pro Gly Val Gly Asp Ala Ala Ala Ala Val Ala Ala Thr	350	355	360	365
gcc gtg ccc gca gtg tcc cag gcg caa ctg ggc acc cgc gcc gcg gcc				1334
Ala Val Pro Ala Val Ser Gln Ala Gln Leu Gly Thr Arg Ala Ala Gly	370	375	380	
cag cac tgg taa cctagccggg gcccgaggga agcggagatc cccggcttcc				1386
Gln His Trp *				

gacgtccttg ggcaccgtcg cctccttccc tcctagggca tcccctgcct gaacgaagac	1446
ttccgccgcg aagcccgata gatcggggga aaatggggcc ttccgaccca gcgggctacc	1506
tgaaccaagg cgtctctcta agtggggcgc ccgaagtcat tttggacggc cacctgattt	1566
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acttgcaaac tggcgtttta aaataaccgg ttaattttatt tccacacagt ttgtttttga	1686
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ccctgggggca gttgaagccc taggtgtgcc caccagtatg agttgccatt aagacctcaa	1926
gcccttttatt cttaaaaggg ttttaataaa aagtctttct caaatgaggt agaattcttag	1986

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2043

<210> 24

<211> 384

<212> PRT

<213> Homo sapiens

<400> 24

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Pro	Val	Ser	Leu	Leu	Tyr	Ser	Gly	Leu	Ala	Ile	Gly	Gly	Thr	Leu	Ala
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Asn	Gly	Met	Val	Ile	Tyr	Leu	Val	Ser	Ser	Phe	Arg	Lys	Leu	Gln	Thr
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Thr	Ser	Asn	Ala	Phe	Ile	Val	Asn	Gly	Cys	Ala	Ala	Asp	Leu	Ser	Val
	65				70					75					80
Cys	Ala	Leu	Trp	Met	Pro	Gln	Glu	Ala	Val	Leu	Gly	Leu	Leu	Pro	Thr
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Gly	Ser	Ala	Glu	Pro	Pro	Ala	Asp	Trp	Asp	Gly	Ala	Gly	Gly	Ser	Tyr
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Leu	Ser	His	Cys	Leu	Val	Ala	Leu	Asn	Arg	Tyr	Leu	Leu	Ile	Thr	Arg
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Ala	Pro	Ala	Thr	Tyr	Gln	Ala	Leu	Tyr	Gln	Arg	Arg	His	Thr	Ala	Gly
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Met	Leu	Ala	Leu	Ser	Trp	Ala	Leu	Ala	Leu	Gly	Leu	Val	Leu	Leu	Leu
				165					170					175	
Pro	Pro	Trp	Ala	Pro	Arg	Pro	Gly	Ala	Ala	Pro	Pro	Arg	Val	His	Tyr
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Leu	His	Cys	Tyr	Leu	Gly	Ile	Val	Arg	Arg	Val	Arg	Val	Ser	Val	Lys
	210					215						220			
Arg	Val	Ser	Val	Leu	Asn	Phe	His	Leu	Leu	His	Gln	Leu	Pro	Gly	Cys
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Ala	Ala	Ala	Ala	Ala	Ala	Phe	Pro	Gly	Ala	Gln	His	Ala	Pro	Gly	Pro
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Gly	Gly	Ala	Ala	His	Pro	Ala	Gln	Ala	Gln	Pro	Leu	Pro	Pro	Ala	Leu
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His	Pro	Arg	Arg	Ala	Gln	Arg	Arg	Leu	Ser	Gly	Leu	Ser	Val	Leu	Leu
		275					280					285			
Leu	Cys	Cys	Val	Phe	Leu	Leu	Ala	Thr	Gln	Pro	Leu	Val	Trp	Val	Ser
	290					295					300				
Leu	Ala	Ser	Gly	Phe	Ser	Leu	Pro	Val	Pro	Trp	Gly	Val	Gln	Ala	Ala
	305				310					315					320
Ser	Trp	Leu	Leu	Cys	Cys	Ala	Leu	Ser	Ala	Leu	Asn	Pro	Leu	Leu	Tyr
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Thr	Trp	Arg	Asn	Glu	Glu	Phe	Arg	Arg	Ser	Val	Arg	Ser	Val	Leu	Pro
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Gly	Val	Gly	Asp	Ala	Ala	Ala	Ala	Ala	Val	Ala	Ala	Thr	Ala	Val	Pro
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<210> 25

<211> 2809

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (361)...(2655)

<400> 25

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ggggaggggag gttccgcccgc tcctctgctg tcagcgcccg cagcccctcc cggcttcact 180
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ctcagcctgc ggggctccag tcaggccaac accgacgcgc agctgggagg aagacaggac 300
ccttgacatc tccatctgca cagaggtcct ggctggaccg agcagcctcc tcctcctagg 360
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Met Thr Ser Pro Ser Ser Ser Pro Val Phe Arg Leu Glu Thr Leu Asp
1 5 10 15
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Gly Gly Gln Glu Asp Gly Ser Glu Ala Asp Arg Gly Lys Leu Asp Phe
20 25 30
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ggg agc ggg ctg cct ccc atg gag tca cag ttc cag ggc gag gac cgg 504
Gly Ser Gly Leu Pro Pro Met Glu Ser Gln Phe Gln Gly Glu Asp Arg
35 40 45
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aaa ttc gcc cct cag ata aga gtc aac ctc aac tac cga aag gga aca 552
Lys Phe Ala Pro Gln Ile Arg Val Asn Leu Asn Tyr Arg Lys Gly Thr
50 55 60
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ggg gcc agt cag ccg gat cca aac cga ttt gag cga gat cgg ctc ttc 600
Gly Ala Ser Gln Pro Asp Pro Asn Arg Phe Asp Arg Asp Arg Leu Phe
65 70 75 80
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aat gcg gtc tcc cgg ggt gtc ccc gag gat ctg gct gga ctt cca gag 648
Asn Ala Val Ser Arg Gly Val Pro Glu Asp Leu Ala Gly Leu Pro Glu
85 90 95
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tac ctg agc aag acc agc aag tac ctc acc gac tcg gaa tac aca gag 696
Tyr Leu Ser Lys Thr Ser Lys Tyr Leu Thr Asp Ser Glu Tyr Thr Glu
100 105 110
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ggc tcc aca ggt aag acg tgc ctg atg aag gct gtg ctg aac ctt aag 744
Gly Ser Thr Gly Lys Thr Cys Leu Met Lys Ala Val Leu Asn Leu Lys
115 120 125
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gac gga gtc aat gcc tgc att ctg cca ctg ctg cag atc gac agg gac 792
Asp Gly Val Asn Ala Cys Ile Leu Pro Leu Leu Gln Ile Asp Arg Asp
130 135 140
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tct ggc aat cct cag ccc ctg gta aat gcc cag tgc aca gat gac tat 840
Ser Gly Asn Pro Gln Pro Leu Val Asn Ala Gln Cys Thr Asp Asp Tyr
145 150 155 160
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tac cga ggc cac agc gct ctg cac atc gcc att gag aag agg agt ctg 888
Tyr Arg Gly His Ser Ala Leu His Ile Ala Ile Glu Lys Arg Ser Leu
165 170 175
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cag tgt gtg aag ctc ctg gtg gag aat ggg gcc aat gtg cat gcc cgg 936
Gln Cys Val Lys Leu Leu Val Glu Asn Gly Ala Asn Val His Ala Arg
180 185 190
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gcc tgc ggc cgc ttc ttc cag aag ggc caa ggg act tgc ttt tat ttc	984
Ala Cys Gly Arg Phe Phe Gln Lys Gly Gln Gly Thr Cys Phe Tyr Phe	
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ggt gag cta ccc ctc tct ttg gcc gct tgc acc aag cag tgg gat gtg	1032
Gly Glu Leu Pro Leu Ser Leu Ala Ala Cys Thr Lys Gln Trp Asp Val	
210 215 220	
gta agc tac ctc ctg gag aac cca cac cag ccc gcc agc ctg cag gcc	1080
Val Ser Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu Gln Ala	
225 230 235 240	
act gac tcc cag ggc aac aca gtc ctg cat gcc cta gtg atg atc tcg	1128
Thr Asp Ser Gln Gly Asn Thr Val Leu His Ala Leu Val Met Ile Ser	
245 250 255	
gac aac tca gct gag aac att gca ctg gtg acc agc atg tat gat ggg	1176
Asp Asn Ser Ala Glu Asn Ile Ala Leu Val Thr Ser Met Tyr Asp Gly	
260 265 270	
ctc ctc caa gct ggg gcc cgc ctc tgc cct acc gtg cag ctt gag gac	1224
Leu Leu Gln Ala Gly Ala Arg Leu Cys Pro Thr Val Gln Leu Glu Asp	
275 280 285	
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Ile Arg Asn Leu Gln Asp Leu Thr Pro Leu Lys Leu Ala Ala Lys Glu	
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Gly Lys Ile Glu Ile Phe Arg His Ile Leu Gln Arg Glu Phe Ser Gly	
305 310 315 320	
ctg agc cac ctt tcc cga aag ttc acc gag tgg tgc tat ggg cct gtc	1368
Leu Ser His Leu Ser Arg Lys Phe Thr Glu Trp Cys Tyr Gly Pro Val	
325 330 335	
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Arg Val Ser Leu Tyr Asp Leu Ala Ser Val Asp Ser Cys Glu Glu Asn	
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Ser Val Leu Glu Ile Ile Ala Phe His Cys Lys Ser Pro His Arg His	
355 360 365	
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Arg Met Val Val Leu Glu Pro Leu Asn Lys Leu Leu Gln Ala Lys Trp	
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gat ctg ctc atc ccc aag ttc ttc tta aac ttc ctg tgt aat ctg atc	1560
Asp Leu Leu Ile Pro Lys Phe Phe Leu Asn Phe Leu Cys Asn Leu Ile	
385 390 395 400	
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Tyr Met Phe Ile Phe Thr Ala Val Ala Tyr His Gln Pro Thr Leu Lys	
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aag cag gcc gcc cct cac ctg aaa gcg gag gtt gga aac tcc atg ctg	1656
Lys Gln Ala Ala Pro His Leu Lys Ala Glu Val Gly Asn Ser Met Leu	
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ttc	ata	gac	agc	tac	ttt	gaa	atc	ctc	ttc	ctg	ttc	cag	gcc	ctg	ctc	1800	
Phe	Ile	Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Phe	Gln	Ala	Leu	Leu		
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aca	gtg	gtg	tcc	cag	gtg	ctg	tgt	ttc	ctg	gcc	atc	gag	tgg	tac	ctg	1848	
Thr	Val	Val	Ser	Gln	Val	Leu	Cys	Phe	Leu	Ala	Ile	Glu	Trp	Tyr	Leu		
				485					490					495			
ccc	ctg	ctt	gtg	tct	gcg	ctg	gtg	ctg	ggc	tgg	ctg	aac	ctg	ctt	tac	1896	
Pro	Leu	Leu	Val	Ser	Ala	Leu	Val	Leu	Gly	Trp	Leu	Asn	Leu	Leu	Tyr		
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Tyr	Thr	Arg	Gly	Phe	Gln	His	Thr	Gly	Ile	Tyr	Ser	Val	Met	Ile	Gln		
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Lys	Val	Ile	Leu	Arg	Asp	Leu	Leu	Arg	Phe	Leu	Leu	Ile	Tyr	Leu	Val		
	530					535					540						
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Phe	Leu	Phe	Gly	Phe	Ala	Val	Ala	Leu	Val	Ser	Leu	Ser	Gln	Glu	Ala		
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Trp	Arg	Pro	Glu	Ala	Pro	Thr	Gly	Pro	Asn	Ala	Thr	Glu	Ser	Val	Gln		
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Pro	Met	Glu	Gly	Gln	Glu	Asp	Glu	Gly	Asn	Gly	Ala	Gln	Tyr	Arg	Gly		
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Ile	Leu	Glu	Ala	Ser	Leu	Glu	Leu	Phe	Lys	Phe	Thr	Ile	Gly	Met	Gly		
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ctg	ctg	ctg	gcc	tac	gtg	ctg	ctc	acc	tac	atc	ctg	ctg	ctc	aac	atg	2280	
Leu	Leu	Leu	Ala	Tyr	Val	Leu	Leu	Thr	Tyr	Ile	Leu	Leu	Leu	Asn	Met		
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Trp	Ser	Ile	Trp	Lys	Leu	Gln	Lys	Ala	Ile	Ser	Val	Leu	Glu	Met	Glu		
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Thr Val Gly Thr Lys Pro Asp Gly Ser Pro Asp Glu Arg Trp Cys Phe															
690 695 700															
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Arg Val Glu Glu Val Asn Trp Ala Ser Trp Glu Gln Thr Leu Pro Thr															
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Pro Val Leu Ala Ser Pro Pro Lys Glu Asp Glu Asp Gly Ala Ser Glu															
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Arg	Val	Ser	Leu	Tyr	Asp	Leu	Ala	Ser	Val	Asp	Ser	Cys	Glu	Glu
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Ser	Val	Leu	Glu	Ile	Ile	Ala	Phe	His	Cys	Lys	Ser	Pro	His	Arg
	355					360						365		His
Arg	Met	Val	Val	Leu	Glu	Pro	Leu	Asn	Lys	Leu	Leu	Gln	Ala	Lys
	370					375					380			Trp
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Gly	Gln	Leu	Trp	Tyr	Phe	Trp	Arg	Arg	His	Val	Phe	Ile	Trp	Ile
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Phe	Ile	Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Phe	Gln	Ala	Leu
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Thr	Val	Val	Ser	Gln	Val	Leu	Cys	Phe	Leu	Ala	Ile	Glu	Trp	Tyr
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Pro	Leu	Leu	Val	Ser	Ala	Leu	Val	Leu	Gly	Trp	Leu	Asn	Leu	Leu
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Tyr	Thr	Arg	Gly	Phe	Gln	His	Thr	Gly	Ile	Tyr	Ser	Val	Met	Ile
	515						520					525		Gln
Lys	Val	Ile	Leu	Arg	Asp	Leu	Leu	Arg	Phe	Leu	Leu	Ile	Tyr	Leu
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Phe	Leu	Phe	Gly	Phe	Ala	Val	Ala	Leu	Val	Ser	Leu	Ser	Gln	Glu
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Trp	Arg	Pro	Glu	Ala	Pro	Thr	Gly	Pro	Asn	Ala	Thr	Glu	Ser	Val
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Pro	Met	Glu	Gly	Gln	Glu	Asp	Glu	Gly	Asn	Gly	Ala	Gln	Tyr	Arg
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Glu	Leu	Ala	Phe	Gln	Glu	Gln	Leu	His	Phe	Arg	Gly	Met	Val	Leu
	610					615					620			Leu
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Leu	Ile	Ala	Leu	Met	Ser	Glu	Thr	Val	Asn	Ser	Val	Ala	Thr	Asp
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Trp	Ser	Ile	Trp	Lys	Leu	Gln	Lys	Ala	Ile	Ser	Val	Leu	Glu	Met
		660						665					670	Glu
Asn	Gly	Tyr	Trp	Trp	Cys	Arg	Lys	Lys	Gln	Arg	Ala	Gly	Val	Met
	675						680					685		Leu
Thr	Val	Gly	Thr	Lys	Pro	Asp	Gly	Ser	Pro	Asp	Glu	Arg	Trp	Cys
	690					695					700			Phe
Arg	Val	Glu	Glu	Val	Asn	Trp	Ala	Ser	Trp	Glu	Gln	Thr	Leu	Pro
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Ile	His	Leu	Val	Ser	Arg	Glu	Glu	Cys	Glu	His	Ala	Tyr	Pro	Gly	Gln		
160					165					170					175		
atc	acc	cag	aac	atg	ttg	tgt	gct	ggg	gat	gag	aag	tac	ggg	aag	gat	818	
Ile	Thr	Gln	Asn	Met	Leu	Cys	Ala	Gly	Asp	Glu	Lys	Tyr	Gly	Lys	Asp		
				180					185					190			
tcc	tgc	cag	ggt	gat	tct	ggg	ggt	ccg	ctg	gta	tgt	gga	gac	cac	ctc	866	
Ser	Cys	Gln	Gly	Asp	Ser	Gly	Gly	Pro	Leu	Val	Cys	Gly	Asp	His	Leu		
			195					200					205				
cga	ggc	ctt	gtg	tca	tgg	ggt	aac	atc	ccc	tgt	gga	tca	aag	gag	aag	914	
Arg	Gly	Leu	Val	Ser	Trp	Gly	Asn	Ile	Pro	Cys	Gly	Ser	Lys	Glu	Lys		
		210					215					220					
cca	gga	gtc	tac	acc	aac	gtc	tgc	aga	tac	acg	aac	tgg	atc	caa	aaa	962	
Pro	Gly	Val	Tyr	Thr	Asn	Val	Cys	Arg	Tyr	Thr	Asn	Trp	Ile	Gln	Lys		
	225					230					235						
acc	att	cag	gcc	aag	tga	ccctgacatg	tgacatctac	ctccccgacct								1010	
Thr	Ile	Gln	Ala	Lys	*												
240																	

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His	Pro	Tyr	Gln	Ala	Ala	Leu	Tyr	Thr	Ser	Gly	His	Leu	Leu	Cys	Gly		
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Gly	Val	Leu	Ile	His	Pro	Leu	Trp	Val	Leu	Thr	Ala	Ala	His	Cys	Lys		
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Lys	Pro	Asn	Leu	Gln	Val	Phe	Leu	Gly	Lys	His	Asn	Leu	Arg	Gln	Arg		
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Glu	Ser	Ser	Gln	Glu	Gln	Ser	Ser	Val	Val	Arg	Ala	Val	Ile	His	Pro		
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Asp-Tyr	Asp	Ala	Ala	Ser	His	Asp	Gln	Asp	Ile	Met	Leu	Leu	Arg	Leu			
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Ala	Arg	Pro	Ala	Lys	Leu	Ser	Glu	Leu	Ile	Gln	Pro	Leu	Pro	Leu	Glu		
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Arg	Asp	Cys	Ser	Ala	Asn	Thr	Thr	Ser	Cys	His	Ile	Leu	Gly	Trp	Gly		
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Lys	Thr	Ala	Asp	Gly	Asp	Phe	Pro	Asp	Thr	Ile	Gln	Cys	Ala	Tyr	Ile
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His	Leu	Val	Ser	Arg	Glu	Glu	Cys	Glu	His	Ala	Tyr	Pro	Gly	Gln	Ile
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Thr	Gln	Asn	Met	Leu	Cys	Ala	Gly	Asp	Glu	Lys	Tyr	Gly	Lys	Asp	Ser
			180					185					190		
Cys	Gln	Gly	Asp	Ser	Gly	Gly	Pro	Leu	Val	Cys	Gly	Asp	His	Leu	Arg
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Gly	Leu	Val	Ser	Trp	Gly	Asn	Ile	Pro	Cys	Gly	Ser	Lys	Glu	Lys	Pro
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Gly	Val	Tyr	Thr	Asn	Val	Cys	Arg	Tyr	Thr	Asn	Trp	Ile	Gln	Lys	Thr
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Ile	Gln	Ala	Lys												

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 Met Pro Val Arg Arg  
 1 5

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 Gly His Val Ala Pro Gln Asn Thr Phe Leu Gly Thr Ile Ile Arg Lys  
 10 15 20

ttt gaa ggg caa aat aaa aaa ttt atc att gca aat gcc aga gtg cag 211  
 Phe Glu Gly Gln Asn Lys Lys Phe Ile Ile Ala Asn Ala Arg Val Gln  
 25 30 35

aac tgt gcc atc att tat tgc aac gat ggg ttc tgt gag atg act ggt 259  
 Asn Cys Ala Ile Ile Tyr Cys Asn Asp Gly Phe Cys Glu Met Thr Gly  
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 Phe Ser Arg Pro Asp Val Met Gln Lys Pro Cys Thr Cys Asp Phe Leu  
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cat gga ccc gag acc aag agg cat gat att gcc caa att gcc cag gca 355  
 His Gly Pro Glu Thr Lys Arg His Asp Ile Ala Gln Ile Ala Gln Ala  
 70 75 80 85

ttg ctg ggg tca gaa gag agg aaa gtg gag gtc acc tac tat cac aaa 403  
 Leu Leu Gly Ser Glu Glu Arg Lys Val Glu Val Thr Tyr Tyr His Lys  
 90 95 100

aat ggg tcc act ttt att tgt aac act cac ata att cca gtg aaa aac 451  
 Asn Gly Ser Thr Phe Ile Cys Asn Thr His Ile Ile Pro Val Lys Asn  
 105 110 115

caa gag ggc gtg gct atg atg ttc atc att aat ttt gaa tat gtg acg 499

Gln	Glu	Gly	Val	Ala	Met	Met	Phe	Ile	Ile	Asn	Phe	Glu	Tyr	Val	Thr		
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gat	aat	gaa	aac	gct	gcc	acc	cca	gag	agg	gta	aac	cca	ata	tta	cca	547	
Asp	Asn	Glu	Asn	Ala	Ala	Thr	Pro	Glu	Arg	Val	Asn	Pro	Ile	Leu	Pro		
	135					140					145						
atc	aaa	act	gta	aac	cgg	aaa	ttt	ttt	ggg	ttc	aaa	ttc	cct	ggt	ctg	595	
Ile	Lys	Thr	Val	Asn	Arg	Lys	Phe	Phe	Gly	Phe	Lys	Phe	Pro	Gly	Leu		
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aga	gtt	ctc	act	tac	aga	aag	cag	tcc	tta	cca	caa	gaa	gac	ccc	gat	643	
Arg	Val	Leu	Thr	Tyr	Arg	Lys	Gln	Ser	Leu	Pro	Gln	Glu	Asp	Pro	Asp		
				170				175						180			
gtg	gtg	gtc	atc	gat	tca	tct	aaa	cac	agt	gat	gat	tca	gta	gcc	atg	691	
Val	Val	Val	Ile	Asp	Ser	Ser	Lys	His	Ser	Asp	Asp	Ser	Val	Ala	Met		
			185					190					195				
aag	cat	ttt	aag	tct	cct	aca	aaa	gaa	agc	tgc	agc	ccc	tct	gaa	gca	739	
Lys	His	Phe	Lys	Ser	Pro	Thr	Lys	Glu	Ser	Cys	Ser	Pro	Ser	Glu	Ala		
	200						205					210					
gat	gac	aca	aaa	gct	ttg	ata	cag	ccc	agc	aaa	tgt	tct	ccc	ttg	gtg	787	
Asp	Asp	Thr	Lys	Ala	Leu	Ile	Gln	Pro	Ser	Lys	Cys	Ser	Pro	Leu	Val		
	215					220					225						
aat	ata	tcc	gga	cct	ctt	gac	cat	tcc	tct	ccc	aaa	agg	caa	tgg	gac	835	
Asn	Ile	Ser	Gly	Pro	Leu	Asp	His	Ser	Ser	Pro	Lys	Arg	Gln	Trp	Asp		
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Arg	Leu	Tyr	Pro	Asp	Met	Leu	Gln	Ser	Ser	Ser	Gln	Leu	Ser	His	Ser		
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Arg	Ser	Arg	Glu	Ser	Leu	Cys	Ser	Ile	Arg	Arg	Ala	Ser	Ser	Val	His		
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gat	ata	gaa	gga	ttc	ggc	gtc	cac	ccc	aag	aac	ata	ttt	aga	gac	cga	979	
Asp	Ile	Glu	Gly	Phe	Gly	Val	His	Pro	Lys	Asn	Ile	Phe	Arg	Asp	Arg		
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cat	gcc	agc	gaa	gac	aat	ggt	cgc	aat	gtc	aaa	ggg	cct	ttt	aat	cat	1027	
His	Ala	Ser	Glu	Asp	Asn	Gly	Arg	Asn	Val	Lys	Gly	Pro	Phe	Asn	His		
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Ile	Lys	Ser	Ser	Leu	Leu	Gly	Ser	Thr	Ser	Asp	Ser	Asn	Leu	Asn	Lys		
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tac	agc	acc	att	aac	aag	att	cca	cag	ctc	act	ctg	aat	ttt	tca	gag	1123	
Tyr	Ser	Thr	Ile	Asn	Lys	Ile	Pro	Gln	Leu	Thr	Leu	Asn	Phe	Ser	Glu		
				330					335					340			
gtc	aaa	act	gag	aaa	aag	aat	tca	tca	cct	cct	tct	tca	gat	aaa	acc	1171	
Val	Lys	Thr	Glu	Lys	Lys	Asn	Ser	Ser	Pro	Pro	Ser	Ser	Asp	Lys	Thr		
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att	att	gca	ccc	aag	gtt	aaa	gat	cga	aca	cac	aat	gtg	act	gag	aaa	1219	
Ile	Ile	Ala	Pro	Lys	Val	Lys	Asp	Arg	Thr	His	Asn	Val	Thr	Glu	Lys		

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ctg cag aca cca cgc atc aac aag ttt acg ata ttg cac tac agc cct Leu Gln Thr Pro Arg Ile Asn Lys Phe Thr Ile Leu His Tyr Ser Pro 390 395 400 405			1315
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gct ata ttt act ccc tac tct gca gcc ttc ctc ctc aat gac aga gaa Ala Ile Phe Thr Pro Tyr Ser Ala Ala Phe Leu Leu Asn Asp Arg Glu 425 430 435			1411
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ctt gtg cgc gtg gcc agg aaa ctg gat cga tat tca gaa tat ggc gct Leu Val Arg Val Ala Arg Lys Leu Asp Arg Tyr Ser Glu Tyr Gly Ala 535 540 545			1747
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cgt tac aat gac agt gac tca agt tct gga cca tcc att aaa gac aaa Arg Tyr Asn Asp Ser Asp Ser Ser Ser Gly Pro Ser Ile Lys Asp Lys 600 605 610			1939

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Glu Lys Glu Asn Ser Thr Asn Asp Pro Glu Asp Ser Ala Asp Thr Ile	
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Ser Gly Ile Val Asp Ser Ser Pro Gly Ile Gly Lys Ala Ser Gly Leu	
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 Pro Glu Phe Leu Asp Leu Glu Lys Ser Lys Leu Lys Ser Lys Glu Ser  
 1110 1115 1120 1125  
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 Ser Leu Leu Lys Gln Asp Ser Asp Leu Ser Leu Glu Leu His Leu Arg  
 1145 1150 1155  
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 1160 1165 1170  
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 1175 1180 1185  
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 Asp Pro Gly Leu Pro Gly Lys \*  
 1190 1195  
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<213> Homo sapiens

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 Cys Glu Met Thr Gly Phe Ser Arg Pro Asp Val Met Gln Lys Pro Cys  
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 Thr Cys Asp Phe Leu His Gly Pro Glu Thr Lys Arg His Asp Ile Ala  
 65 70 75 80  
 Gln Ile Ala Gln Ala Leu Leu Gly Ser Glu Glu Arg Lys Val Glu Val  
 85 90 95  
 Thr Tyr Tyr His Lys Asn Gly Ser Thr Phe Ile Cys Asn Thr His Ile  
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 Ile Pro Val Lys Asn Gln Glu Gly Val Ala Met Met Phe Ile Ile Asn  
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 Phe Glu Tyr Val Thr Asp Asn Glu Asn Ala Ala Thr Pro Glu Arg Val  
 130 135 140  
 Asn Pro Ile Leu Pro Ile Lys Thr Val Asn Arg Lys Phe Phe Gly Phe

145					150					155				160
Lys	Phe	Pro	Gly	Leu	Arg	Val	Leu	Thr	Tyr	Arg	Lys	Gln	Ser	Leu
				165						170				175
Gln	Glu	Asp	Pro	Asp	Val	Val	Val	Ile	Asp	Ser	Ser	Lys	His	Ser
			180					185					190	
Asp	Ser	Val	Ala	Met	Lys	His	Phe	Lys	Ser	Pro	Thr	Lys	Glu	Ser
		195					200					205		Cys
Ser	Pro	Ser	Glu	Ala	Asp	Asp	Thr	Lys	Ala	Leu	Ile	Gln	Pro	Ser
	210					215					220			Lys
Cys	Ser	Pro	Leu	Val	Asn	Ile	Ser	Gly	Pro	Leu	Asp	His	Ser	Ser
225					230					235				240
Lys	Arg	Gln	Trp	Asp	Arg	Leu	Tyr	Pro	Asp	Met	Leu	Gln	Ser	Ser
														Ser
				245						250				255
Gln	Leu	Ser	His	Ser	Arg	Ser	Arg	Glu	Ser	Leu	Cys	Ser	Ile	Arg
			260					265					270	Arg
Ala	Ser	Ser	Val	His	Asp	Ile	Glu	Gly	Phe	Gly	Val	His	Pro	Lys
		275					280					285		Asn
Ile	Phe	Arg	Asp	Arg	His	Ala	Ser	Glu	Asp	Asn	Gly	Arg	Asn	Val
	290					295					300			Lys
Gly	Pro	Phe	Asn	His	Ile	Lys	Ser	Ser	Leu	Leu	Gly	Ser	Thr	Ser
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Ser	Asn	Leu	Asn	Lys	Tyr	Ser	Thr	Ile	Asn	Lys	Ile	Pro	Gln	Leu
			325						330					335
Leu	Asn	Phe	Ser	Glu	Val	Lys	Thr	Glu	Lys	Lys	Asn	Ser	Ser	Pro
		340						345					350	Pro
Ser	Ser	Asp	Lys	Thr	Ile	Ile	Ala	Pro	Lys	Val	Lys	Asp	Arg	Thr
		355					360					365		His
Asn	Val	Thr	Glu	Lys	Val	Thr	Gln	Val	Leu	Ser	Leu	Gly	Ala	Asp
	370					375					380			Val
Leu	Pro	Glu	Tyr	Lys	Leu	Gln	Thr	Pro	Arg	Ile	Asn	Lys	Phe	Thr
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Leu	His	Tyr	Ser	Pro	Phe	Lys	Ala	Val	Trp	Asp	Trp	Leu	Ile	Leu
			405						410					415
Leu	Val	Ile	Tyr	Thr	Ala	Ile	Phe	Thr	Pro	Tyr	Ser	Ala	Ala	Phe
		420					425						430	Leu
Leu	Asn	Asp	Arg	Glu	Glu	Gln	Lys	Arg	Arg	Glu	Cys	Gly	Tyr	Ser
	435						440					445		Cys
Ser	Pro	Leu	Asn	Val	Val	Asp	Leu	Ile	Val	Asp	Ile	Met	Phe	Ile
	450					455					460			Ile
Asp	Ile	Leu	Ile	Asn	Phe	Arg	Thr	Thr	Tyr	Val	Asn	Gln	Asn	Glu
465					470					475				480
Val	Val	Ser	Asp	Pro	Ala	Lys	Ile	Ala	Ile	His	Tyr	Phe	Lys	Gly
			485						490					495
Phe	Leu	Ile	Asp	Met	Val	Ala	Ala	Ile	Pro	Phe	Asp	Leu	Leu	Ile
		500						505					510	Phe
Gly	Ser	Gly	Ser	Asp	Glu	Thr	Thr	Thr	Leu	Ile	Gly	Leu	Leu	Lys
	515						520					525		Thr
Ala	Arg	Leu	Leu	Arg	Leu	Val	Arg	Val	Ala	Arg	Lys	Leu	Asp	Arg
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Ser	Glu	Tyr	Gly	Ala	Ala	Val	Leu	Met	Leu	Ser	Met	Cys	Ile	Phe
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Leu	Asn	Ala	His	Trp	Leu	Ala	Cys	Ile	Trp	Tyr	Ala	Ile	Gly	Asn
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Glu	Arg	Pro	Tyr	Leu	Thr	Asp	Lys	Ile	Gly	Trp	Leu	Asp	Ser	Leu
		580						585					590	Gly
Gln	Gln	Ile	Gly	Lys	Arg	Tyr	Asn	Asp	Ser	Asp	Ser	Ser	Ser	Gly
	595						600					605		Pro
Ser	Ile	Lys	Asp	Lys	Tyr	Val	Thr	Ala	Leu	Tyr	Phe	Thr	Phe	Ser
	610					615					620			Ser
Leu	Thr	Ser	Val	Gly	Phe	Gly	Asn	Val	Ser	Pro	Asn	Thr	Asn	Ser
														Glu

625					630					635				640
Lys	Ile	Phe	Ser	Ile	Cys	Val	Met	Leu	Ile	Gly	Ser	Leu	Met	Tyr
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Ser	Ile	Phe	Gly	Asn	Val	Ser	Ala	Ile	Ile	Gln	Arg	Leu	Tyr	Ser
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Thr	Ala	Arg	Tyr	His	Met	Gln	Met	Leu	Arg	Val	Lys	Glu	Phe	Ile
		675					680					685		
Phe	His	Gln	Ile	Pro	Asn	Pro	Leu	Arg	Gln	Arg	Leu	Glu	Glu	Tyr
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Gln	His	Ala	Trp	Thr	Tyr	Thr	Asn	Gly	Ile	Asp	Met	Asn	Met	Val
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Lys	Gly	Phe	Pro	Glu	Cys	Leu	Gln	Ala	Asp	Ile	Cys	Leu	His	Leu
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Gln	Thr	Leu	Leu	Gln	Asn	Cys	Lys	Ala	Phe	Arg	Gly	Ala	Ser	Lys
			740					745					750	
Cys	Leu	Arg	Ala	Leu	Ala	Met	Lys	Phe	Lys	Thr	Thr	His	Ala	Leu
	755					760						765		
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Leu	Ser	Arg	Gly	Ser	Ile	Glu	Ile	Ser	Lys	Asn	Asp	Met	Val	Val
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Ile	Leu	Gly	Lys	Asn	Asp	Ile	Phe	Gly	Glu	Met	Val	His	Leu	Tyr
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Lys	Pro	Gly	Lys	Ser	Asn	Ala	Asp	Val	Arg	Ala	Leu	Thr	Tyr	Cys
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	835						840					845		
Pro	Glu	Phe	Ser	Asp	His	Phe	Leu	Thr	Asn	Leu	Glu	Leu	Thr	Phe
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Leu	Arg	His	Glu	Ser	Ala	Lys	Ala	Asp	Leu	Leu	Arg	Ser	Gln	Ser
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Asn	Asp	Ser	Glu	Gly	Asp	Asn	Cys	Lys	Leu	Arg	Arg	Arg	Lys	Leu
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Phe	Glu	Ser	Glu	Gly	Glu	Lys	Glu	Asn	Ser	Thr	Asn	Asp	Pro	Glu
	900							905					910	
Ser	Ala	Asp	Thr	Ile	Arg	His	Tyr	Gln	Ser	Ser	Lys	Arg	His	Phe
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Glu	Lys	Lys	Ser	Arg	Ser	Ser	Ser	Phe	Ile	Ser	Ser	Ile	Asp	Asp
	930					935						940		
Gln	Lys	Pro	Leu	Phe	Ser	Gly	Ile	Val	Asp	Ser	Ser	Pro	Gly	Ile
945					950					955				960
Lys	Ala	Ser	Gly	Leu	Asp	Phe	Glu	Glu	Thr	Val	Pro	Thr	Ser	Gly
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Met	His	Ile	Asp	Lys	Arg	Ser	His	Ser	Cys	Lys	Asp	Ile	Thr	Asp
		980						985					990	
Arg	Ser	Trp	Glu	Arg	Glu	Asn	Ala	His	Pro	Gln	Pro	Glu	Asp	Ser
	995					1000						1005		
Pro	Ser	Ala	Leu	Gln	Arg	Ala	Ala	Trp	Gly	Ile	Ser	Glu	Thr	Glu
	1010					1015					1020			
Asp	Leu	Thr	Tyr	Gly	Glu	Val	Glu	Gln	Arg	Leu	Asp	Leu	Leu	Gln
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Gln	Leu	Asn	Arg	Leu	Glu	Ser	Gln	Met	Thr	Thr	Asp	Ile	Gln	Thr
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Leu	Gln	Leu	Leu	Gln	Lys	Gln	Thr	Thr	Val	Val	Pro	Pro	Ala	Tyr
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Met	Val	Thr	Ala	Gly	Ser	Glu	Tyr	Gln	Arg	Pro	Ile	Ile	Gln	Leu
	1075						1080					1085		
Arg	Thr	Ser	Gln	Pro	Glu	Ala	Ser	Ile	Lys	Thr	Asp	Arg	Ser	Phe
	1090					1095					1100			
Pro	Ser	Ser	Gln	Cys	Pro	Glu	Phe	Leu	Asp	Leu	Glu	Lys	Ser	Lys
1105					1110					1115				1120



Cys	Ala	Thr	Leu	Thr	Ala	Met	Ser	Val	Asp	Arg	Trp	Tyr	Val	Thr	Val		
130					135					140					145		
ttc	ccg	ttg	cgc	gcc	ctg	cac	cgc	cgc	acg	ccc	cgc	ctg	gcg	ctg	gct	658	
Phe	Pro	Leu	Arg	Ala	Leu	His	Arg	Arg	Thr	Pro	Arg	Leu	Ala	Leu	Ala		
				150					155					160			
gtc	agc	ctc	agc	atc	tgg	gta	ggc	tct	gcg	gcg	gtg	tct	gcg	ccg	gtg	706	
Val	Ser	Leu	Ser	Ile	Trp	Val	Gly	Ser	Ala	Ala	Val	Ser	Ala	Pro	Val		
			165					170					175				
ctc	gcc	ctg	cac	cgc	ctg	tca	ccc	ggg	ccg	cgc	gcc	tac	tgc	agt	gag	754	
Leu	Ala	Leu	His	Arg	Leu	Ser	Pro	Gly	Pro	Arg	Ala	Tyr	Cys	Ser	Glu		
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gcc	ttc	ccc	agc	cgc	gcc	ctg	gag	cgc	gcc	ttc	gca	ctg	tac	aac	ctg	802	
Ala	Phe	Pro	Ser	Arg	Ala	Leu	Glu	Arg	Ala	Phe	Ala	Leu	Tyr	Asn	Leu		
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ctg	gcg	ctg	tac	ctg	ctg	ccg	ctg	ctc	gcc	acc	tgc	gcc	tgc	tat	gcg	850	
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Ala	Met	Leu	Arg	His	Leu	Gly	Arg	Val	Ala	Val	Arg	Pro	Ala	Pro	Ala		
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Asp	Ser	Ala	Leu	Gln	Gly	Gln	Val	Leu	Ala	Glu	Arg	Ala	Gly	Ala	Val		
			245					250					255				
cgg	gcc	aag	gtc	tcg	cgg	ctg	gtg	gcg	gcc	gtg	gtc	ctg	ctc	ttc	gcc	994	
Arg	Ala	Lys	Val	Ser	Arg	Leu	Val	Ala	Ala	Val	Val	Leu	Leu	Phe	Ala		
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gcc	tgc	tgg	ggc	ccc	atc	cag	ctg	ttc	ctg	gtg	ctg	cag	gcg	ctg	ggc	1042	
Ala	Cys	Trp	Gly	Pro	Ile	Gln	Leu	Phe	Leu	Val	Leu	Gln	Ala	Leu	Gly		
	275					280					285						
ccc	gcg	ggc	tcc	tgg	cac	cca	cgc	agc	tac	gcc	gcc	tac	gcg	ctt	aag	1090	
Pro	Ala	Gly	Ser	Trp	His	Pro	Arg	Ser	Tyr	Ala	Ala	Tyr	Ala	Leu	Lys		
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acc	tgg	gct	cac	tgc	atg	tcc	tac	agc	aac	tcc	gcg	ctg	aac	ccg	ctg	1138	
Thr	Trp	Ala	His	Cys	Met	Ser	Tyr	Ser	Asn	Ser	Ala	Leu	Asn	Pro	Leu		
				310					315					320			
ctc	tac	gcc	ttc	ctg	ggc	tcg	cac	ttc	cga	cag	gcc	ttc	cgc	cgc	gtc	1186	
Leu	Tyr	Ala	Phe	Leu	Gly	Ser	His	Phe	Arg	Gln	Ala	Phe	Arg	Arg	Val		
			325					330					335				
tgc	ccc	tgc	gcg	ccg	cgc	cgc	ccc	cgc	cgc	ccc	cgc	cgg	ccc	gga	ccc	1234	
Cys	Pro	Cys	Ala	Pro	Arg	Arg	Pro	Arg	Arg	Pro	Arg	Arg	Pro	Gly	Pro		
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tcg	gac	ccc	gca	gcc	cca	cac	gcg	gag	ctg	cac	cgc	ctg	ggg	tcc	cac	1282	
Ser	Asp	Pro	Ala	Ala	Pro	His	Ala	Glu	Leu	His	Arg	Leu	Gly	Ser	His		
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ccg	gcc	ccc	gcc	agg	gcg	cag	aag	cca	ggg	agc	agt	ggg	ctg	gcc	gcg	1330	
Pro	Ala	Pro	Ala	Arg	Ala	Gln	Lys	Pro	Gly	Ser	Ser	Gly	Leu	Ala	Ala		

370 375 380 385

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 Arg Gly Leu Cys Val Leu Gly Glu Asp Asn Ala Pro Leu \*  
 390 395

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Pro	Val	Pro	Ser	Pro	Arg	Ala	Val	Asp	Ala	Trp	Leu	Val	Pro	Leu	Phe
			35				40					45			
Phe	Ala	Ala	Leu	Met	Leu	Leu	Gly	Leu	Val	Gly	Asn	Ser	Leu	Val	Ile
	50					55					60				
Tyr	Val	Ile	Cys	Arg	His	Lys	Pro	Met	Arg	Thr	Val	Thr	Asn	Phe	Tyr
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Ile	Ala	Asn	Leu	Ala	Ala	Thr	Asp	Val	Thr	Phe	Leu	Leu	Cys	Cys	Val
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Pro	Phe	Thr	Ala	Leu	Leu	Tyr	Pro	Leu	Pro	Gly	Trp	Val	Leu	Gly	Asp
			100					105					110		
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		115					120					125			
Thr	Cys	Ala	Thr	Leu	Thr	Ala	Met	Ser	Val	Asp	Arg	Trp	Tyr	Val	Thr
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Val	Phe	Pro	Leu	Arg	Ala	Leu	His	Arg	Arg	Thr	Pro	Arg	Leu	Ala	Leu
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Ala	Val	Ser	Leu	Ser	Ile	Trp	Val	Gly	Ser	Ala	Ala	Val	Ser	Ala	Pro
				165					170					175	
Val	Leu	Ala	Leu	His	Arg	Leu	Ser	Pro	Gly	Pro	Arg	Ala	Tyr	Cys	Ser
			180					185					190		
Glu	Ala	Phe	Pro	Ser	Arg	Ala	Leu	Glu	Arg	Ala	Phe	Ala	Leu	Tyr	Asn
	195						200				205				
Leu	Leu	Ala	Leu	Tyr	Leu	Leu	Pro	Leu	Leu	Ala	Thr	Cys	Ala	Cys	Tyr
	210					215					220				
Ala	Ala	Met	Leu	Arg	His	Leu	Gly	Arg	Val	Ala	Val	Arg	Pro	Ala	Pro
225					230					235					240
Ala	Asp	Ser	Ala	Leu	Gln	Gly	Gln	Val	Leu	Ala	Glu	Arg	Ala	Gly	Ala
			245						250					255	
Val	Arg	Ala	Lys	Val	Ser	Arg	Leu	Val	Ala	Ala	Val	Val	Leu	Leu	Phe
			260					265					270		
Ala	Ala	Cys	Trp	Gly	Pro	Ile	Gln	Leu	Phe	Leu	Val	Leu	Gln	Ala	Leu
			275				280					285			
Gly	Pro	Ala	Gly	Ser	Trp	His	Pro	Arg	Ser	Tyr	Ala	Ala	Tyr	Ala	Leu
	290					295					300				
Lys	Thr	Trp	Ala	His	Cys	Met	Ser	Tyr	Ser	Asn	Ser	Ala	Leu	Asn	Pro
305					310					315					320
Leu	Leu	Tyr	Ala	Phe	Leu	Gly	Ser	His	Phe	Arg	Gln	Ala	Phe	Arg	Arg
			325						330					335	
Val	Cys	Pro	Cys	Ala	Pro	Arg	Arg	Pro	Arg	Arg	Pro	Arg	Arg	Pro	Gly
			340					345					350		

Pro Ser Asp Pro Ala Ala Pro His Ala Glu Leu His Arg Leu Gly Ser  
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His Pro Ala Pro Ala Arg Ala Gln Lys Pro Gly Ser Ser Gly Leu Ala  
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Phe Val Leu Ala Leu Met Leu Gly Ala Leu Pro Glu Val Val Gly Phe  
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Asp Ser Val Leu Asn Asp Ser Leu His His Ser His Arg His Ser Pro  
25 30 35  
cct gcg ggt ccg cac tac ccc tat tac ctt ccc acc cag cag cgg ccc 199  
Pro Ala Gly Pro His Tyr Pro Tyr Tyr Leu Pro Thr Gln Gln Arg Pro  
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Pro Thr Thr Arg Pro Pro Pro Pro Leu Pro Arg Phe Pro Arg Pro Pro  
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Arg Ala Leu Pro Ala Gln Arg Pro His Ala Leu Gln Ala Gly His Thr  
70 75 80 85  
ccc cgg ccg cac ccc tgg ggc tgc ccc gcc ggc gag cca tgg gtc agc 343  
Pro Arg Pro His Pro Trp Gly Cys Pro Ala Gly Glu Pro Trp Val Ser  
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Val Thr Asp Phe Gly Ala Pro Cys Leu Arg Trp Ala Glu Val Pro Pro  
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ttc ctg gag cgg tcg ccc cca gcg agc tgg gct cag ctg cga gga cag 439  
Phe Leu Glu Arg Ser Pro Pro Ala Ser Trp Ala Gln Leu Arg Gly Gln  
120 125 130  
cgc cac aac ttt tgt cgg agc ccc gac ggc gcg ggc aga ccc tgg tgt 487  
Arg His Asn Phe Cys Arg Ser Pro Asp Gly Ala Gly Arg Pro Trp Cys  
135 140 145  
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Phe Tyr Gly Asp Ala Arg Gly Lys Val Asp Trp Gly Tyr Cys Asp Cys

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aga cac gga tca gta cga ctt cgt ggc ggc aaa aat gag ttt gaa ggc	Arg His Gly Ser Val Arg Leu Arg Gly Gly Lys Asn Glu Phe Glu Gly	583		
	170	175	180	
aca gtg gaa gta tat gca agt gga gtt tgg ggc act gtc tgt agc agc	Thr Val Glu Val Tyr Ala Ser Gly Val Trp Gly Thr Val Cys Ser Ser	631		
	185	190	195	
cac tgg gat gat tct gat gca tca gtc att tgt cac cag ctg cag ctg	His Trp Asp Asp Ser Asp Ala Ser Val Ile Cys His Gln Leu Gln Leu	679		
	200	205	210	
gga gga aaa gga ata gca aaa caa acc ccg ttt tct gga ctg ggc ctt	Gly Gly Lys Gly Ile Ala Lys Gln Thr Pro Phe Ser Gly Leu Gly Leu	727		
	215	220	225	
att ccc att tat tgg agc aat gtc cgt tgc cga gga gat gaa gaa aat	Ile Pro Ile Tyr Trp Ser Asn Val Arg Cys Arg Gly Asp Glu Glu Asn	775		
	230	235	240	245
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	250	255	260	
aag atg gca gct gct gtc acg tgt agc ttt tcc cat ggc cca acg ttc	Lys Met Ala Ala Ala Val Thr Cys Ser Phe Ser His Gly Pro Thr Phe	871		
	265	270	275	
ccc atc att cgc ctt gct gga ggc agc agt gtg cat gaa ggc cgg gtg	Pro Ile Ile Arg Leu Ala Gly Gly Ser Ser Val His Glu Gly Arg Val	919		
	280	285	290	
gag ctc tac cat gct ggc cag tgg gga acc gtt tgt gat gac caa tgg	Glu Leu Tyr His Ala Gly Gln Trp Gly Thr Val Cys Asp Asp Gln Trp	967		
	295	300	305	
gat gat gcc gat gca gaa gtg atc tgc agg cag ctg ggc ctc agt ggc	Asp Asp Ala Asp Ala Glu Val Ile Cys Arg Gln Leu Gly Leu Ser Gly	1015		
	310	315	320	325
att gcc aaa gca tgg cat cag gca tat ttt ggg gaa ggg tct ggc cca	Ile Ala Lys Ala Trp His Gln Ala Tyr Phe Gly Glu Gly Ser Gly Pro	1063		
	330	335	340	
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	345	350	355	
cag tgt cca aag agc tcc tgg gga gag cat aac tgt ggc cat aaa gaa	Gln Cys Pro Lys Ser Ser Trp Gly Glu His Asn Cys Gly His Lys Glu	1159		
	360	365	370	
gat gct gga gtg tcc tgt acc cct cta aca gat ggg gtc atc aga ctt	Asp Ala Gly Val Ser Cys Thr Pro Leu Thr Asp Gly Val Ile Arg Leu	1207		
	375	380	385	
gca ggt ggg aaa ggc agc cat gag ggt cgc ttg gag gta tat tac aga	Ala Gly Gly Lys Gly Ser His Glu Gly Arg Leu Glu Val Tyr Tyr Arg	1255		
	390	395	400	405



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Gly Gln Trp Gly Thr Val Cys Asp Asp Gly Trp Thr Glu Leu Asn Thr	
410 415 420	
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Tyr Val Val Cys Arg Gln Leu Gly Phe Lys Tyr Gly Lys Gln Ala Ser	
425 430 435	
gcc aac cat ttt gaa gaa agc aca ggg ccc ata tgg ttg gat gac gtc	1399
Ala Asn His Phe Glu Glu Ser Thr Gly Pro Ile Trp Leu Asp Asp Val	
440 445 450	
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Ser Cys Ser Gly Lys Glu Thr Arg Phe Leu Gln Cys Ser Arg Arg Gln	
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Tyr Pro Gly Gly Glu Gly His Arg Leu Ser Leu Gly Phe Pro Val Arg	
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Leu Met Asp Gly Glu Asn Lys Lys Glu Gly Arg Val Glu Val Phe Ile	
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Ala Ala Val Ile Cys Arg Gln Leu Gly Tyr Lys Gly Pro Ala Arg Ala	
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Arg Thr Met Ala Tyr Phe Gly Glu Gly Lys Gly Pro Ile His Val Asp	
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Asn Val Lys Cys Thr Gly Asn Glu Arg Ser Leu Ala Asp Cys Ile Lys	
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Gln Asp Ile Gly Arg His Asn Cys Arg His Ser Glu Asp Ala Gly Val	
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att tgt gat tat ttt ggc aag aag gcc tca ggt aac agt aat aaa gag	1879
Ile Cys Asp Tyr Phe Gly Lys Lys Ala Ser Gly Asn Ser Asn Lys Glu	
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Ser Leu Ser Ser Val Cys Gly Leu Arg Leu Leu His Arg Arg Gln Lys	
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Phe Lys Arg Tyr Gly Asn Ser Thr Arg Ser Tyr Ala Val Arg Val Gly	
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Asp Tyr His Thr Leu Val Pro Glu Glu Phe Glu Glu Ile Gly Val	
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Gln Gln Ile Val Ile His Arg Glu Tyr Arg Pro Asp Arg Ser Asp Tyr	
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Phe Ser Ser His Val Leu Pro Ala Cys Leu Pro Leu Trp Arg Glu Arg	
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Pro Gln Lys Thr Ala Ser Asn Cys Tyr Ile Thr Gly Trp Gly Asp Thr	
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Gly Arg Ala Tyr Ser Arg Thr Leu Gln Gln Ala Ala Ile Pro Leu Leu	
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cct aaa agg ttt tgt gaa gaa cgt tat aag ggt cgg ttt aca ggg aga	2455
Pro Lys Arg Phe Cys Glu Glu Arg Tyr Lys Gly Arg Phe Thr Gly Arg	
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Met Leu Cys Ala Gly Asn Leu His Glu His Lys Arg Val Asp Ser Cys	
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Gln Gly Asp Ser Gly Gly Pro Leu Met Cys Glu Arg Pro Gly Glu Ser	
825 830 835	
tgg gtg gtg tat ggg gtg acc tcc tgg ggg tat ggc tgt gga gtc aag	2599
Trp Val Val Tyr Gly Val Thr Ser Trp Gly Tyr Gly Cys Gly Val Lys	
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gat tct cct ggt gtt tat acc aaa gtc tca gcc ttt gta cct tgg ata	2647
Asp Ser Pro Gly Val Tyr Thr Lys Val Ser Ala Phe Val Pro Trp Ile	
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Lys Ser Val Thr Lys Leu *	
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Thr Gln Gln Arg Pro Pro Thr Thr Arg Pro Pro Pro Pro Leu Pro Arg
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Phe Pro Arg Pro Pro Arg Ala Leu Pro Ala Gln Arg Pro His Ala Leu
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Gln Ala Gly His Thr Pro Arg Pro His Pro Trp Gly Cys Pro Ala Gly
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Glu Pro Trp Val Ser Val Thr Asp Phe Gly Ala Pro Cys Leu Arg Trp
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Ala Glu Val Pro Pro Phe Leu Glu Arg Ser Pro Pro Ala Ser Trp Ala
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Gln Leu Arg Gly Gln Arg His Asn Phe Cys Arg Ser Pro Asp Gly Ala
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Gly Arg Pro Trp Cys Phe Tyr Gly Asp Ala Arg Gly Lys Val Asp Trp
145    150    155    160
Gly Tyr Cys Asp Cys Arg His Gly Ser Val Arg Leu Arg Gly Gly Lys
165    170    175
Asn Glu Phe Glu Gly Thr Val Glu Val Tyr Ala Ser Gly Val Trp Gly
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Thr Val Cys Ser Ser His Trp Asp Asp Ser Asp Ala Ser Val Ile Cys
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His Gln Leu Gln Leu Gly Gly Lys Gly Ile Ala Lys Gln Thr Pro Phe
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Ser Gly Leu Gly Leu Ile Pro Ile Tyr Trp Ser Asn Val Arg Cys Arg
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Gly Val Cys Pro Gln Lys Met Ala Ala Ala Val Thr Cys Ser Phe Ser
260    265    270
His Gly Pro Thr Phe Pro Ile Ile Arg Leu Ala Gly Gly Ser Ser Val
275    280    285
His Glu Gly Arg Val Glu Leu Tyr His Ala Gly Gln Trp Gly Thr Val
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Cys Asp Asp Gln Trp Asp Asp Ala Asp Ala Glu Val Ile Cys Arg Gln
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Leu Gly Leu Ser Gly Ile Ala Lys Ala Trp His Gln Ala Tyr Phe Gly
325    330    335

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Glu	Val	Tyr	Tyr	Arg	Gly	Gln	Trp	Gly	Thr	Val	Cys	Asp	Asp	Gly	Trp
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Gly	Arg	Leu	Leu	Cys	Gly	Ala	Thr	Leu	Leu	Ser	Ser	Cys	Trp	Val	Leu
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Thr	Ala	Ala	His	Cys	Phe	Lys	Arg	Tyr	Gly	Asn	Ser	Thr	Arg	Ser	Tyr
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Glu	Glu	Ile	Gly	Val	Gln	Gln	Ile	Val	Ile	His	Arg	Glu	Tyr	Arg	Pro
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Asp	Arg	Ser	Asp	Tyr	Asp	Ile	Ala	Leu	Val	Arg	Leu	Gln	Gly	Pro	Glu
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Glu	Gln	Cys	Ala	Arg	Phe	Ser	Ser	His	Val	Leu	Pro	Ala	Cys	Leu	Pro
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Leu	Trp	Arg	Glu	Arg	Pro	Gln	Lys	Thr	Ala	Ser	Asn	Cys	Tyr	Ile	Thr
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Ala	Ile	Pro	Leu	Leu	Pro	Lys	Arg	Phe	Cys	Glu	Glu	Arg	Tyr	Lys	Gly
785					790					795					800
Arg	Phe	Thr	Gly	Arg	Met	Leu	Cys	Ala	Gly	Asn	Leu	His	Glu	His	Lys
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Arg	Val	Asp	Ser	Cys	Gln	Gly	Asp	Ser	Gly	Gly	Pro	Leu	Met	Cys	Glu

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Arg	Met	Asn	Ser	Asn	Asn	Arg	Asp	Ser	Ser	Ala	Leu	Asn	His	Ser	Ser	
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Lys	Glu	Arg	Pro	Glu	Ile	Ser	Leu	Pro	Ser	Asp	Phe	Glu	His	Thr	Ile	
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His	Val	Gly	Phe	Asp	Ala	Val	Thr	Gly	Glu	Phe	Thr	Gly	Ile	Pro	Glu	
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caa tgg gca cga tta ctc caa act tcc aac ata aca aaa ttg gaa cag																336
Gln	Trp	Ala	Arg	Leu	Leu	Gln	Thr	Ser	Asn	Ile	Thr	Lys	Leu	Glu	Gln	
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Pro	Arg	Pro	Glu	His	Thr	Lys	Ser	Ile	Tyr	Thr	Arg	Ser	Val	Val	Glu		
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Ser	Ile	Ala	Ser	Pro	Ala	Val	Pro	Asn	Lys	Glu	Val	Thr	Pro	Pro	Ser		
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Gly	Ile	Met	Ala	Ile	Glu	Met	Val	Glu	Gly	Glu	Pro	Pro	Tyr	Leu	Asn		
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gaa	aat	cca	ctc	agg	gca	ttg	tat	ctg	ata	gcc	act	aat	gga	act	cca	1440	
Glu	Asn	Pro	Leu	Arg	Ala	Leu	Tyr	Leu	Ile	Ala	Thr	Asn	Gly	Thr	Pro		
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Asn	Arg	Cys	Leu	Glu	Met	Asp	Val	Asp	Arg	Arg	Gly	Ser	Ala	Lys	Glu		
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Leu	Leu	Gln	His	Pro	Phe	Leu	Lys	Leu	Ala	Lys	Pro	Leu	Ser	Ser	Leu		
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 50 55 60  
 Lys Glu Arg Pro Glu Ile Ser Leu Pro Ser Asp Phe Glu His Thr Ile  
 65 70 75 80  
 His Val Gly Phe Asp Ala Val Thr Gly Glu Phe Thr Gly Ile Pro Glu  
 85 90 95  
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accaccaggc ttgggtgtgt gatgcgtgc tggcccaggc tacacccga caaggacac 300
cggggggccct gggagcagag agacctcaga gcagcctcct cctgcctcct gtggacggcc 360
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tcagtcctct catg atg gct ccc ccg aca gcc ggc ccc ctt cct ggc cca 470
          Met Ala Pro Pro Thr Ala Gly Pro Leu Pro Gly Pro
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gct ctt ccg cct gag gac cca ggg ccg gat ccg gag agc agg tgg ctt 518
Ala Leu Pro Pro Glu Asp Pro Gly Pro Asp Pro Glu Ser Arg Trp Leu
                15                20                25

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Phe Leu Ser Ala Asn Ile Leu Pro Val Val Glu Arg Cys Met Gly Ala
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atg caa gag ggg atg cag atg gtg aag ctg cgt ggc ggc tcc aag ggc 614
Met Gln Glu Gly Met Gln Met Val Lys Leu Arg Gly Gly Ser Lys Gly
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ctg gtc cgc ttc tac tac ctg gac gag cac cgc tcc tgc atc cgc tgg 662
Leu Val Arg Phe Tyr Tyr Leu Asp Glu His Arg Ser Cys Ile Arg Trp
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agg ccc tca cgc aag aac gag aag gcc aag atc tcc atc gac tcc atc 710
Arg Pro Ser Arg Lys Asn Glu Lys Ala Lys Ile Ser Ile Asp Ser Ile
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cag gag gtg agt gag ggg cgg cag tcg gag gtc ttc cag cgc tac cct 758
Gln Glu Val Ser Glu Gly Arg Gln Ser Glu Val Phe Gln Arg Tyr Pro
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gac ggc agc ttc gac ccc aac tgc tgc ttc agc atc tac cac ggc agc 806
Asp Gly Ser Phe Asp Pro Asn Cys Cys Phe Ser Ile Tyr His Gly Ser
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cac cgc gag tcg ctg gac ctg gtc tcc acc agc agc gag gtg gcg cgc 854
His Arg Glu Ser Leu Asp Leu Val Ser Thr Ser Ser Glu Val Ala Arg
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acc tgg gtc act ggc ctg cgc tac ctc atg gcc ggc atc agc gac gag 902
Thr Trp Val Thr Gly Leu Arg Tyr Leu Met Ala Gly Ile Ser Asp Glu
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gac agc ctg gct cgc cgc cag cgc acc agg gac cag tgg ctg aag cag 950
Asp Ser Leu Ala Arg Arg Gln Arg Thr Arg Asp Gln Trp Leu Lys Gln
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Thr Phe Asp Glu Ala Asp Lys Asn Gly Asp Gly Ser Leu Ser Ile Gly
                175                180                185

gag gtc ctg cag ctg ctg cac aag ctc aac gtg aac ctg ccc cgg cag 1046
Glu Val Leu Gln Leu Leu His Lys Leu Asn Val Asn Leu Pro Arg Gln
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cgc cgg gac ctc tac ctg ctc atg ctg acc tac agc aac cac aag gac Arg Arg Asp Leu Tyr Leu Leu Met Leu Thr Tyr Ser Asn His Lys Asp 240		245	1190
cac ctg gat gcc gcc agc ctg cag cgc ttc ctg cag gtg gag cag aag His Leu Asp Ala Ala Ser Leu Gln Arg Phe Leu Gln Val Glu Gln Lys 255		260	1238
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gag cca tgc cca gaa aac aag agt aag ggg ctg ctg ggc att gat ggc Glu Pro Cys Pro Glu Asn Lys Ser Lys Gly Leu Leu Gly Ile Asp Gly 285		295	1334
ttc acc aac tac acc agg agc cct gct ggt gac atc ttc aac cct gag Phe Thr Asn Tyr Thr Arg Ser Pro Ala Gly Asp Ile Phe Asn Pro Glu 305		310	1382
cac cac cat gtg cac cag gac atg acg cag ccg ctg agc cac tac ttc His His His Val His Gln Asp Met Thr Gln Pro Leu Ser His Tyr Phe 320		325	1430
atc acc tcg tcc cac aac acc tac ctc gtg ggt gac cag ctc atg tcc Ile Thr Ser Ser His Asn Thr Tyr Leu Val Gly Asp Gln Leu Met Ser 335		340	1478
cag tca cgg gtg gac atg tat gct tgg gtc ctg cag gct ggc tgc cgc Gln Ser Arg Val Asp Met Tyr Ala Trp Val Leu Gln Ala Gly Cys Arg 350		355	1526
tgc gtg gag gtg gac tgc tgg gat ggg ccc gac ggg gag ccc att gtg Cys Val Glu Val Asp Cys Trp Asp Gly Pro Asp Gly Glu Pro Ile Val 365		370	1574
cac cat ggc tac act ctg act tcc aag atc ctc ttc aaa gac gtc att His His Gly Tyr Thr Leu Thr Ser Lys Ile Leu Phe Lys Asp Val Ile 385		390	1622
gaa acc atc aac aaa tat gcc ttc atc aag aat gag tac cca gtg atc Glu Thr Ile Asn Lys Tyr Ala Phe Ile Lys Asn Glu Tyr Pro Val Ile 400		405	1670
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cag tat ctg act gac atc ctt ggg gac aag ctg gac ctg tca tca gtg Gln Tyr Leu Thr Asp Ile Leu Gly Asp Lys Leu Asp Leu Ser Ser Val 430		435	1766
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Ser Ser Glu Asp Ala Thr Thr Leu Pro Ser Pro Gln Met Leu Lys Gly	
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Asp Asp Cys Lys Leu Leu Asn Gly Asp Ala Ser Thr Asn Arg Lys Arg	
495 500 505	
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Lys Ile Arg Asp Cys Glu Asp Pro Asn Asn Phe Ser Val Ser Thr Leu	
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Ser Pro Ser Gly Lys Leu Gly Arg Lys Ser Lys Ala Glu Glu Asp Val	
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Glu Ser Gly Glu Asp Ala Gly Ala Ser Arg Arg Asn Gly Arg Leu Val	
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Val Gly Ser Phe Ser Arg Arg Lys Lys Lys Gly Ser Lys Leu Lys Lys	
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Ala Ala Ser Val Glu Glu Gly Asp Glu Gly Gln Asp Ser Pro Gly Gly	
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cag agc cga ggg gcg acc cgg cag aag aag acc atg aag ctg tcc cgg	2294
Gln Ser Arg Gly Ala Thr Arg Gln Lys Lys Thr Met Lys Leu Ser Arg	
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gcc ctc tct gac ctg gtg aag tac acc aag tcc gtg gcc acc cac gac	2342
Ala Leu Ser Asp Leu Val Lys Tyr Thr Lys Ser Val Ala Thr His Asp	
625 630 635	
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Ile Glu Met Glu Ala Ala Ser Ser Trp Gln Val Ser Ser Phe Ser Glu	
640 645 650	
acc aag gcc cac cag att ctg cag cag aag ccg gcg cag tac cta cgc	2438
Thr Lys Ala His Gln Ile Leu Gln Gln Lys Pro Ala Gln Tyr Leu Arg	
655 660 665	
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Phe Asn Gln Gln Gln Leu Ser Arg Ile Tyr Pro Ser Ser Tyr Arg Val	
670 675 680	

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Asp Ser Ser Asn Tyr Asn Pro Gln Pro Phe Trp Asn Ala Gly Cys Gln	
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Met Val Ala Leu Asn Tyr Gln Ser Glu Gly Arg Met Leu Gln Leu Asn	
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Arg Ala Lys Phe Ser Ala Asn Gly Gly Cys Gly Tyr Val Leu Lys Pro	
720 725 730	
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Gly Cys Met Cys Gln Gly Val Phe Asn Pro Asn Ser Glu Asp Pro Leu	
735 740 745	
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Pro Gly Gln Leu Lys Lys Gln Leu Val Leu Arg Ile Ile Ser Gly Gln	
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Gln Leu Pro Lys Pro Arg Asp Ser Met Leu Gly Asp Arg Gly Glu Ile	
765 770 775 780	
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Ser Arg Glu Gln Thr Arg Val Val Asp Asp Asn Gly Phe Asn Pro Thr	
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Trp Glu Glu Thr Leu Val Phe Met Val His Met Pro Glu Ile Ala Leu	
815 820 825	
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Val Arg Phe Leu Val Trp Asp His Asp Pro Ile Gly Arg Asp Phe Ile	
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Gly Gln Arg Thr Leu Ala Phe Ser Ser Met Met Pro Gly Tyr Arg His	
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gtg tac cta gaa ggg atg gaa gag gcc tcc atc ttc gtg cat gtg gct	3062
Val Tyr Leu Glu Gly Met Glu Glu Ala Ser Ile Phe Val His Val Ala	
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Val Ser Asp Ile Ser Gly Lys Val Lys Gln Ala Leu Gly Leu Lys Gly	
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Leu Phe Leu Arg Gly Pro Lys Pro Gly Ser Leu Asp Ser His Ala Ala	
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Gly Arg Pro Pro Ala Arg Pro Ser Val Ser Gln Arg Ile Leu Arg Arg	
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ccg	gag	ctg	gtc	ctg	ggg	aca	cgg	gac	aca	ggc	tcc	aag	ggg	gtg	gca	3302
Pro	Glu	Leu	Val	Leu	Gly	Thr	Arg	Asp	Thr	Gly	Ser	Lys	Gly	Val	Ala	
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gac	gat	gtg	gtg	ccc	ccc	ggg	ccc	gga	cct	gct	ccg	gaa	gcc	cca	gcc	3350
Asp	Asp	Val	Val	Pro	Pro	Gly	Pro	Gly	Pro	Ala	Pro	Glu	Ala	Pro	Ala	
				960				965					970			
cag	gag	ggg	ccc	ggc	agc	ggc	agc	ccc	cga	ggg	aag	gcg	cca	gct	gcg	3398
Gln	Glu	Gly	Pro	Gly	Ser	Gly	Ser	Pro	Arg	Gly	Lys	Ala	Pro	Ala	Ala	
		975					980					985				
gtg	gca	gag	aag	agc	cct	gtg	cga	gtg	cgg	ccc	ccg	cgt	gtc	ctg	gac	3446
Val	Ala	Glu	Lys	Ser	Pro	Val	Arg	Val	Arg	Pro	Pro	Arg	Val	Leu	Asp	
	990					995					1000					
ggc	ccc	ggg	cct	gct	ggg	atg	gcc	gcc	aca	tgc	atg	aag	tgt	gtg	gtg	3494
Gly	Pro	Gly	Pro	Ala	Gly	Met	Ala	Ala	Thr	Cys	Met	Lys	Cys	Val	Val	
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gga	tcc	tgc	gcc	ggc	gtg	aac	acc	ggg	ggc	ctg	cag	agg	gag	cgg	cca	3542
Gly	Ser	Cys	Ala	Gly	Val	Asn	Thr	Gly	Gly	Leu	Gln	Arg	Glu	Arg	Pro	
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Pro	Ser	Pro	Gly	Pro	Ala	Ser	Arg	Gln	Ala	Ala	Ile	Arg	Gln	Gln	Pro	
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cgg	gcc	cgg	gct	gac	tca	ctg	ggg	gcc	ccc	tgc	tgt	ggc	ctg	gac	cct	3638
Arg	Ala	Arg	Ala	Asp	Ser	Leu	Gly	Ala	Pro	Cys	Cys	Gly	Leu	Asp	Pro	
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His	Ala	Ile	Pro	Gly	Arg	Ser	Arg	Glu	Ala	Pro	Lys	Gly	Pro	Gly	Ala	
	1070					1075					1080					
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Trp	Arg	Gln	Gly	Pro	Gly	Gly	Ser	Gly	Ser	Met	Ser	Ser	Asp	Ser	Ser	
1085				1090					1095					1100		
agc	cca	gac	agc	ccg	ggc	atc	ccc	gaa	agg	tcc	ccc	cgc	tgg	cct	gag	3782
Ser	Pro	Asp	Ser	Pro	Gly	Ile	Pro	Glu	Arg	Ser	Pro	Arg	Trp	Pro	Glu	
				1105				1110						1115		
ggg	gcc	tgc	agg	caa	ccg	ggg	gcc	ctg	cag	gga	gag	atg	agt	gcc	ttg	3830
Gly	Ala	Cys	Arg	Gln	Pro	Gly	Ala	Leu	Gln	Gly	Glu	Met	Ser	Ala	Leu	
			1120				1125						1130			
ttt	gct	caa	aag	ctg	gag	gag	atc	agg	agt	aaa	tcc	ccc	atg	ttc	tcc	3878
Phe	Ala	Gln	Lys	Leu	Glu	Glu	Ile	Arg	Ser	Lys	Ser	Pro	Met	Phe	Ser	
		1135					1140					1145				
gcc	ggg	aag	ccc	ctc	ttg	ccc	tgc	gtg	gtc	ctc	ccg	cac	gcc	cct	ggc	3926
Ala	Gly	Lys	Pro	Leu	Leu	Pro	Cys	Val	Val	Leu	Pro	His	Ala	Pro	Gly	
	1150					1155					1160					

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1165 1170 1175 1180

cct cgt gtg ctc gtg ctc gtg gct ctg tat ccg tgg cac tgt ctc cgt 4022  
Pro Arg Val Leu Val Leu Val Ala Leu Tyr Pro Trp His Cys Leu Arg  
1185 1190 1195

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Gly Thr Leu Leu Pro Trp Leu Ala Cys Gly Pro \*  
1200 1205

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<213> Homo sapiens

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35 40 45  
Met Gln Met Val Lys Leu Arg Gly Gly Ser Lys Gly Leu Val Arg Phe  
50 55 60  
Tyr Tyr Leu Asp Glu His Arg Ser Cys Ile Arg Trp Arg Pro Ser Arg  
65 70 75 80  
Lys Asn Glu Lys Ala Lys Ile Ser Ile Asp Ser Ile Gln Glu Val Ser  
85 90 95  
Glu Gly Arg Gln Ser Glu Val Phe Gln Arg Tyr Pro Asp Gly Ser Phe  
100 105 110  
Asp Pro Asn Cys Cys Phe Ser Ile Tyr His Gly Ser His Arg Glu Ser  
115 120 125  
Leu Asp Leu Val Ser Thr Ser Ser Glu Val Ala Arg Thr Trp Val Thr  
130 135 140  
Gly Leu Arg Tyr Leu Met Ala Gly Ile Ser Asp Glu Asp Ser Leu Ala  
145 150 155 160  
Arg Arg Gln Arg Thr Arg Asp Gln Trp Leu Lys Gln Thr Phe Asp Glu  
165 170 175  
Ala Asp Lys Asn Gly Asp Gly Ser Leu Ser Ile Gly Glu Val Leu Gln  
180 185 190  
Leu Leu His Lys Leu Asn Val Asn Leu Pro Arg Gln Arg Val Lys Gln  
195 200 205  
Met Phe Arg Glu Ala Asp Thr Asp Asp His Gln Gly Thr Leu Gly Phe  
210 215 220  
Glu Glu Phe Cys Ala Phe Tyr Lys Met Met Ser Thr Arg Arg Asp Leu  
225 230 235 240  
Tyr Leu Leu Met Leu Thr Tyr Ser Asn His Lys Asp His Leu Asp Ala  
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Glu	Asn	Lys	Ser	Lys	Gly	Leu	Leu	Gly	Ile	Asp	Gly	Phe	Thr	Asn	Tyr
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Thr	Arg	Ser	Pro	Ala	Gly	Asp	Ile	Phe	Asn	Pro	Glu	His	His	His	Val
305					310					315					320
His	Gln	Asp	Met	Thr	Gln	Pro	Leu	Ser	His	Tyr	Phe	Ile	Thr	Ser	Ser
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His	Asn	Thr	Tyr	Leu	Val	Gly	Asp	Gln	Leu	Met	Ser	Gln	Ser	Arg	Val
			340					345					350		
Asp	Met	Tyr	Ala	Trp	Val	Leu	Gln	Ala	Gly	Cys	Arg	Cys	Val	Glu	Val
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Asp	Cys	Trp	Asp	Gly	Pro	Asp	Gly	Glu	Pro	Ile	Val	His	His	Gly	Tyr
	370					375					380				
Thr	Leu	Thr	Ser	Lys	Ile	Leu	Phe	Lys	Asp	Val	Ile	Glu	Thr	Ile	Asn
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Lys	Tyr	Ala	Phe	Ile	Lys	Asn	Glu	Tyr	Pro	Val	Ile	Leu	Ser	Ile	Glu
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Asp	Ile	Leu	Gly	Asp	Lys	Leu	Asp	Leu	Ser	Ser	Val	Ser	Ser	Glu	Asp
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Cys	Glu	Asp	Pro	Asn	Asn	Phe	Ser	Val	Ser	Thr	Leu	Ser	Pro	Ser	Gly
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Lys	Leu	Gly	Arg	Lys	Ser	Lys	Ala	Glu	Glu	Asp	Val	Glu	Ser	Gly	Glu
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Asp	Ala	Gly	Ala	Ser	Arg	Arg	Asn	Gly	Arg	Leu	Val	Val	Gly	Ser	Phe
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Ser	Arg	Arg	Lys	Lys	Lys	Gly	Ser	Lys	Leu	Lys	Lys	Ala	Ala	Ser	Val
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Glu	Glu	Gly	Asp	Glu	Gly	Gln	Asp	Ser	Pro	Gly	Gly	Gln	Ser	Arg	Gly
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Ala	Ala	Ser	Ser	Trp	Gln	Val	Ser	Ser	Phe	Ser	Glu	Thr	Lys	Ala	His
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Gln	Ile	Leu	Gln	Lys	Pro	Ala	Gln	Tyr	Leu	Arg	Phe	Asn	Gln	Gln	
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Gln	Leu	Ser	Arg	Ile	Tyr	Pro	Ser	Ser	Tyr	Arg	Val	Asp	Ser	Ser	Asn
	675					680						685			
Tyr	Asn	Pro	Gln	Pro	Phe	Trp	Asn	Ala	Gly	Cys	Gln	Met	Val	Ala	Leu
	690					695					700				
Asn	Tyr	Gln	Ser	Glu	Gly	Arg	Met	Leu	Gln	Leu	Asn	Arg	Ala	Lys	Phe
705					710					715					720
Ser	Ala	Asn	Gly	Gly	Cys	Gly	Tyr	Val	Leu	Lys	Pro	Gly	Cys	Met	Cys
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Met Glu Arg Lys Phe Met Ser Leu Gln Pro Ser Ile Ser Val Ser Glu
  1             5             10             15

atg gaa cca aat ggc acc ttc agc aat aac aac agc agg aac tgc aca 96
Met Glu Pro Asn Gly Thr Phe Ser Asn Asn Asn Ser Arg Asn Cys Thr
             20             25             30

att gaa aac ttc aag aga gaa ttt ttc cca att gta tat ctg ata ata 144
Ile Glu Asn Phe Lys Arg Glu Phe Phe Pro Ile Val Tyr Leu Ile Ile
             35             40             45

ttt ttc tgg gga gtc ttg gga aat ggg ttg tcc ata tat gtt ttc ctg 192
Phe Phe Trp Gly Val Leu Gly Asn Gly Leu Ser Ile Tyr Val Phe Leu
             50             55             60

cag cct tat aag aag tcc aca tct gtg aac gtt ttc atg cta aat ctg 240
Gln Pro Tyr Lys Lys Ser Thr Ser Val Asn Val Phe Met Leu Asn Leu
             65             70             75             80

gcc att tca gat ctc ctg ttc ata agc acg ctt ccc ttc agg gct gac 288
Ala Ile Ser Asp Leu Leu Phe Ile Ser Thr Leu Pro Phe Arg Ala Asp
             85             90             95

tat tat ctt aga ggc tcc aat tgg ata ttt gga gac ctg gcc tgc agg 336
Tyr Tyr Leu Arg Gly Ser Asn Trp Ile Phe Gly Asp Leu Ala Cys Arg
             100            105            110

att atg tct tat tcc ttg tat gtc aac atg tac agc agt att tat ttc 384
Ile Met Ser Tyr Ser Leu Tyr Val Asn Met Tyr Ser Ser Ile Tyr Phe
             115            120            125

ctg acc gtg ctg agt gtt gtg cgt ttc ctg gca atg gtt cac ccc ttt 432
Leu Thr Val Leu Ser Val Val Arg Phe Leu Ala Met Val His Pro Phe
             130            135            140

cgg ctt ctg cat gtc acc agc atc agg agt gcc tgg atc ctc tgt ggg 480
Arg Leu Leu His Val Thr Ser Ile Arg Ser Ala Trp Ile Leu Cys Gly
             145            150            155            160

atc ata tgg atc ctt atc atg gct tcc tca ata atg ctc ctg gac agt 528
Ile Ile Trp Ile Leu Ile Met Ala Ser Ser Ile Met Leu Leu Asp Ser
             165            170            175

ggc tct gag cag aac ggc agt gtc aca tca tgc tta gag ctg aat ctc 576
Gly Ser Glu Gln Asn Gly Ser Val Thr Ser Cys Leu Glu Leu Asn Leu
             180            185            190

tat aaa att gct aag ctg cag acc atg aac tat att gcc ttg gtg gtg 624
Tyr Lys Ile Ala Lys Leu Gln Thr Met Asn Tyr Ile Ala Leu Val Val
             195            200            205

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ggc tgc ctg ctg cca ttt ttc aca ctc agc atc tgt tat ctg ctg atc	672
Gly Cys Leu Leu Pro Phe Phe Thr Leu Ser Ile Cys Tyr Leu Leu Ile	
210 215 220	
att cgg gtt ctg tta aaa gtg gag gtc cca gaa tcg ggg ctg cgg gtt	720
Ile Arg Val Leu Leu Lys Val Glu Val Pro Glu Ser Gly Leu Arg Val	
225 230 235 240	
tct cac agg aag gca ctg acc acc atc atc atc acc ttg atc atc ttc	768
Ser His Arg Lys Ala Leu Thr Thr Ile Ile Ile Thr Leu Ile Ile Phe	
245 250 255	
ttc ttg tgt ttc ctg ccc tat cac aca ctg agg acc gtc cac ttg acg	816
Phe Leu Cys Phe Leu Pro Tyr His Thr Leu Arg Thr Val His Leu Thr	
260 265 270	
aca tgg aaa gtg ggt tta tgc aaa gac aga ctg cat aaa gct ttg gtt	864
Thr Trp Lys Val Gly Leu Cys Lys Asp Arg Leu His Lys Ala Leu Val	
275 280 285	
atc aca ctg gcc ttg gca gca gcc aat gcc tgc ttc aat cct ctg ctc	912
Ile Thr Leu Ala Leu Ala Ala Ala Asn Ala Cys Phe Asn Pro Leu Leu	
290 295 300	
tat tac ttt gct ggg gag aat ttt aag gac aga cta aag tct gca ctc	960
Tyr Tyr Phe Ala Gly Glu Asn Phe Lys Asp Arg Leu Lys Ser Ala Leu	
305 310 315 320	
aga aaa ggc cat cca cag aag gca aag aca aag tgt gtt ttc cct gtt	1008
Arg Lys Gly His Pro Gln Lys Ala Lys Thr Lys Cys Val Phe Pro Val	
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agt gtg tgg ttg aga aag gaa aca aga gta taa	1041
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 <213> Homo sapiens

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Ile Glu Asn Phe Lys Arg Glu Phe Phe Pro Ile Val Tyr Leu Ile Ile	
35 40 45	
Phe Phe Trp Gly Val Leu Gly Asn Gly Leu Ser Ile Tyr Val Phe Leu	
50 55 60	
Gln Pro Tyr Lys Lys Ser Thr Ser Val Asn Val Phe Met Leu Asn Leu	
65 70 75 80	
Ala Ile Ser Asp Leu Leu Phe Ile Ser Thr Leu Pro Phe Arg Ala Asp	
85 90 95	
Tyr Tyr Leu Arg Gly Ser Asn Trp Ile Phe Gly Asp Leu Ala Cys Arg	
100 105 110	
Ile Met Ser Tyr Ser Leu Tyr Val Asn Met Tyr Ser Ser Ile Tyr Phe	
115 120 125	
Leu Thr Val Leu Ser Val Val Arg Phe Leu Ala Met Val His Pro Phe	

130	135	140
Arg Leu Leu His Val Thr Ser Ile Arg Ser Ala Trp Ile Leu Cys Gly		
145	150	155
Ile Ile Trp Ile Leu Ile Met Ala Ser Ser Ile Met Leu Leu Asp Ser		
	165	170
Gly Ser Glu Gln Asn Gly Ser Val Thr Ser Cys Leu Glu Leu Asn Leu		
	180	185
Tyr Lys Ile Ala Lys Leu Gln Thr Met Asn Tyr Ile Ala Leu Val Val		
	195	200
Gly Cys Leu Leu Pro Phe Phe Thr Leu Ser Ile Cys Tyr Leu Leu Ile		
	210	215
Ile Arg Val Leu Leu Lys Val Glu Val Pro Glu Ser Gly Leu Arg Val		
225	230	235
Ser His Arg Lys Ala Leu Thr Thr Ile Ile Ile Thr Leu Ile Ile Phe		
	245	250
Phe Leu Cys Phe Leu Pro Tyr His Thr Leu Arg Thr Val His Leu Thr		
	260	265
Thr Trp Lys Val Gly Leu Cys Lys Asp Arg Leu His Lys Ala Leu Val		
	275	280
Ile Thr Leu Ala Leu Ala Ala Asn Ala Cys Phe Asn Pro Leu Leu		
	290	295
Tyr Tyr Phe Ala Gly Glu Asn Phe Lys Asp Arg Leu Lys Ser Ala Leu		
305	310	315
Arg Lys Gly His Pro Gln Lys Ala Lys Thr Lys Cys Val Phe Pro Val		
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Ser Val Trp Leu Arg Lys Glu Thr Arg Val		
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 Met Glu Pro Ser Pro Ala Ala Gly Gly Leu  
 1 5 10

gag acc act cgc ctg gtg agc ccc cgg gac cgc ggt ggc gcc gga ggc 161  
 Glu Thr Thr Arg Leu Val Ser Pro Arg Asp Arg Gly Gly Ala Gly Gly  
 15 20 25

agc ctg cgt ttg aag agt ctc ttc aca gag ccc tca gag ccc ctc cct 209  
 Ser Leu Arg Leu Lys Ser Leu Phe Thr Glu Pro Ser Glu Pro Leu Pro  
 30 35 40

gag gag tcc aaa cct gtg gag atg ccc ttc cac cac tgc cac agg gac 257  
 Glu Glu Ser Lys Pro Val Glu Met Pro Phe His His Cys His Arg Asp  
 45 50 55

ccc ctt ccg ccg ccg ggc ctt acc cct gag agg ctg cat gca cgg agg 305  
 Pro Leu Pro Pro Pro Gly Leu Thr Pro Glu Arg Leu His Ala Arg Arg  
 60 65 70

cag cta tat gct gcc tgt gcc gtt tgc ttt gtc ttc atg gct ggg gag 353

Gln	Leu	Tyr	Ala	Ala	Cys	Ala	Val	Cys	Phe	Val	Phe	Met	Ala	Gly	Glu	
75					80					85					90	
gtg	gtc	ggc	ggg	tat	ctg	gca	cac	agc	ctg	gcc	atc	atg	acc	gat	gca	401
Val	Val	Gly	Gly	Tyr	Leu	Ala	His	Ser	Leu	Ala	Ile	Met	Thr	Asp	Ala	
				95				100						105		
gcc	cac	ttg	ctg	gcg	gat	gtg	ggc	agc	atg	atg	ggc	agc	ctc	ttc	tcc	449
Ala	His	Leu	Leu	Ala	Asp	Val	Gly	Ser	Met	Met	Gly	Ser	Leu	Phe	Ser	
				110				115					120			
ctc	tgg	ctc	tcc	acc	cgt	cca	gcc	acc	cgc	acc	atg	acc	ttt	ggc	tgg	497
Leu	Trp	Leu	Ser	Thr	Arg	Pro	Ala	Thr	Arg	Thr	Met	Thr	Phe	Gly	Trp	
				125			130					135				
cac	cgt	tca	gag	act	ctg	ggg	gct	ttg	gcc	tct	gtg	gtc	tcc	ctc	tgg	545
His	Arg	Ser	Glu	Thr	Leu	Gly	Ala	Leu	Ala	Ser	Val	Val	Ser	Leu	Trp	
	140					145					150					
atg	gtc	act	ggc	atc	ctc	ctg	tac	ctg	gcc	ttc	gtc	cgc	ctg	ctg	cac	593
Met	Val	Thr	Gly	Ile	Leu	Leu	Tyr	Leu	Ala	Phe	Val	Arg	Leu	Leu	His	
155					160					165					170	
agc	gac	tac	cac	atc	gag	ggg	ggt	gcc	atg	ctg	ctg	acc	gcc	agc	atc	641
Ser	Asp	Tyr	His	Ile	Glu	Gly	Gly	Ala	Met	Leu	Leu	Thr	Ala	Ser	Ile	
				175				180						185		
gca	gtc	tgt	gcc	aac	ctg	tta	atg	gcc	ttt	gtg	ctg	cac	cag	gct	ggg	689
Ala	Val	Cys	Ala	Asn	Leu	Leu	Met	Ala	Phe	Val	Leu	His	Gln	Ala	Gly	
				190				195					200			
ccc	ccc	cac	agc	cac	ggg	tct	agg	gga	gca	gag	tat	gca	ccg	ctg	gag	737
Pro	Pro	His	Ser	His	Gly	Ser	Arg	Gly	Ala	Glu	Tyr	Ala	Pro	Leu	Glu	
				205			210					215				
gag	ggg	cct	gaa	cag	ccc	ctg	ccc	ctg	ggg	aac	acc	agc	gtc	cgg	gcg	785
Glu	Gly	Pro	Glu	Gln	Pro	Leu	Pro	Leu	Gly	Asn	Thr	Ser	Val	Arg	Ala	
						225					230					
gca	ttt	gtg	cac	gtg	ctg	ggg	gac	ctc	ctg	cag	agc	ttt	ggg	gta	ctg	833
Ala	Phe	Val	His	Val	Leu	Gly	Asp	Leu	Leu	Gln	Ser	Phe	Gly	Val	Leu	
235					240					245					250	
gct	gcc	tcc	atc	ctc	atc	tac	ttc	aag	cct	caa	tac	aag	gca	gcc	gac	881
Ala	Ala	Ser	Ile	Leu	Ile	Tyr	Phe	Lys	Pro	Gln	Tyr	Lys	Ala	Ala	Asp	
				255					260					265		
ccc	atc	agc	acc	ttc	ctc	ttc	tcc	atc	tgt	gcc	ctt	gga	tcc	acc	gct	929
Pro	Ile	Ser	Thr	Phe	Leu	Phe	Ser	Ile	Cys	Ala	Leu	Gly	Ser	Thr	Ala	
				270				275					280			
ccc	acc	ctc	cga	gac	gtt	ctt	cga	atc	ctc	atg	gaa	ggt	acc	ccc	cgc	977
Pro	Thr	Leu	Arg	Asp	Val	Leu	Arg	Ile	Leu	Met	Glu	Gly	Thr	Pro	Arg	
				285			290					295				
aat	gtg	ggg	ttc	gaa	cct	gtg	cgg	gat	acg	ctg	ttg	tcg	gtg	cca	gga	1025
Asn	Val	Gly	Phe	Glu	Pro	Val	Arg	Asp	Thr	Leu	Leu	Ser	Val	Pro	Gly	
				300			305				310					
gtc	cgg	gca	acc	cat	gag	ctg	cac	ctg	tgg	gcc	ctt	acg	ctc	act	tac	1073
Val	Arg	Ala	Thr	His	Glu	Leu	His	Leu	Trp	Ala	Leu	Thr	Leu	Thr	Tyr	

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315                               320                               325                               330
cat gtt gcc tct gca cac ctg gcc atc gac tcc acc gct gac cct gaa 1121
His Val Ala Ser Ala His Leu Ala Ile Asp Ser Thr Ala Asp Pro Glu
                               335                               340                               345

gcc gtc ctg gct gaa gcc tca tcc cgg ctc tac tcc cgg ttt gga ttc 1169
Ala Val Leu Ala Glu Ala Ser Ser Arg Leu Tyr Ser Arg Phe Gly Phe
                               350                               355                               360

tcc agc tgc acc ctg cag gtc gag cag tat cag ccg gag atg gcc cag 1217
Ser Ser Cys Thr Leu Gln Val Glu Gln Tyr Gln Pro Glu Met Ala Gln
                               365                               370                               375

tgc ctg cgc tgc cag gaa ccc ccc caa gcc tga gccatggccc tgccctcacc 1270
Cys Leu Arg Cys Gln Glu Pro Pro Gln Ala *
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380

385

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ccactgccag gccgaggctc agccccagac tctcagcatc tgctgccctg atcacagaga 1330
cgggaccgag ccaggctcata ccccttcctt ctctcccctc cctaccacct gccagtttcc 1390
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aaaaaaaaaa 2000
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<210> 42

<211> 388

<212> PRT

<213> Homo sapiens

<400> 42

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Leu Phe Thr Glu Pro Ser Glu Pro Leu Pro Glu Glu Ser Lys Pro Val
 35                               40                               45
Glu Met Pro Phe His His Cys His Arg Asp Pro Leu Pro Pro Pro Gly
 50                               55                               60
Leu Thr Pro Glu Arg Leu His Ala Arg Arg Gln Leu Tyr Ala Ala Cys
 65                               70                               75                               80
Ala Val Cys Phe Val Phe Met Ala Gly Glu Val Val Gly Gly Tyr Leu
 85                               90                               95
Ala His Ser Leu Ala Ile Met Thr Asp Ala Ala His Leu Leu Ala Asp
 100                               105                               110
Val Gly Ser Met Met Gly Ser Leu Phe Ser Leu Trp Leu Ser Thr Arg
 115                               120                               125
Pro Ala Thr Arg Thr Met Thr Phe Gly Trp His Arg Ser Glu Thr Leu
 130                               135                               140
Gly Ala Leu Ala Ser Val Val Ser Leu Trp Met Val Thr Gly Ile Leu
 145                               150                               155                               160
Leu Tyr Leu Ala Phe Val Arg Leu Leu His Ser Asp Tyr His Ile Glu
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55	60	65	70	
gat gat gga gag ttt gag aag ttc ttg gag gag ctc tgc aga atc ttg				414
Asp Asp Gly Glu Phe Glu Lys Phe Leu Glu Glu Leu Cys Arg Ile Leu	75	80	85	
aac tgc agt gaa aca gtg gtg gaa gac aga aaa cag gat ctc cag ggg				462
Asn Cys Ser Glu Thr Val Val Glu Asp Arg Lys Gln Asp Leu Gln Gly	90	95	100	
cat ctg cag aag gtg aag cct cag tgg ttt aac agg acc aca cac tgg				510
His Leu Gln Lys Val Lys Pro Gln Trp Phe Asn Arg Thr Thr His Trp	105	110	115	
tcc ttc ctg agc tcg ctc ttt ttc tgc tgc acg gtg ttc agc acc gtg				558
Ser Phe Leu Ser Ser Leu Phe Phe Cys Cys Thr Val Phe Ser Thr Val	120	125	130	
ggc tat ggc tac atc tac ccc gtc acc agg ctt ggc aag tac ttg tgc				606
Gly Tyr Gly Tyr Ile Tyr Pro Val Thr Arg Leu Gly Lys Tyr Leu Cys	135	140	145	150
atg ctc tat gct ctc ttt ggt atc ccc ctg atg ttc ctc gtt ctc acg				654
Met Leu Tyr Ala Leu Phe Gly Ile Pro Leu Met Phe Leu Val Leu Thr	155	160	165	
gac aca ggc gac atc ctg gca acc atc tta tct aca tct tat aat cgg				702
Asp Thr Gly Asp Ile Leu Ala Thr Ile Leu Ser Thr Ser Tyr Asn Arg	170	175	180	
ttc cga aaa ttc cct ttc ttt acc cgc ccc ctc ctc tcc aag tgg tgc				750
Phe Arg Lys Phe Pro Phe Phe Thr Arg Pro Leu Leu Ser Lys Trp Cys	185	190	195	
ccc aaa tct ctc ttc aag aaa aaa ccg gac ccc aag ccc gca gat gaa				798
Pro Lys Ser Leu Phe Lys Lys Lys Pro Asp Pro Lys Pro Ala Asp Glu	200	205	210	
gct gtc cct cag atc atc atc agt gct gaa gag ctt cca ggc ccc aaa				846
Ala Val Pro Gln Ile Ile Ile Ser Ala Glu Glu Leu Pro Gly Pro Lys	215	220	225	230
ctt ggc aca tgt cct tca cgc cca agc tgc agc atg gag ctg ttt gag				894
Leu Gly Thr Cys Pro Ser Arg Pro Ser Cys Ser Met Glu Leu Phe Glu	235	240	245	
aga tct cat gcg cta gag aaa cag aac aca ctg caa ctg ccc cca caa				942
Arg Ser His Ala Leu Glu Lys Gln Asn Thr Leu Gln Leu Pro Pro Gln	250	255	260	
gcc atg gag agg agt aac tcg tgt ccc gaa ctg gtg ttg gga aga ctc				990
Ala Met Glu Arg Ser Asn Ser Cys Pro Glu Leu Val Leu Gly Arg Leu	265	270	275	
tca tac tcc atc atc agc aac ctg gat gaa gtt gga cag cag gtg gag				1038
Ser Tyr Ser Ile Ile Ser Asn Leu Asp Glu Val Gly Gln Gln Val Glu	280	285	290	
agg ttg gac atc ccc ctc ccc atc att gcc ctt att gtt ttt gcc tac				1086
Arg Leu Asp Ile Pro Leu Pro Ile Ile Ala Leu Ile Val Phe Ala Tyr	295	300	305	310

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att tcc tgt gca gct gcc atc ctc ccc ttc tgg gag aca cag ttg gat 1134
Ile Ser Cys Ala Ala Ala Ile Leu Pro Phe Trp Glu Thr Gln Leu Asp
315 320 325

ttc gag aat gcc ttc tat ttc tgc ttt gtc aca ctc acc acc att ggg 1182
Phe Glu Asn Ala Phe Tyr Phe Cys Phe Val Thr Leu Thr Thr Ile Gly
330 335 340

ttt ggg gat act gtt tta gaa cac cct aac ttc ttc ctg ttc ttc tcc 1230
Phe Gly Asp Thr Val Leu Glu His Pro Asn Phe Phe Leu Phe Phe Ser
345 350 355

att tat atc atc gtt gga atg gag att gtg ttc att gct ttc aag ttg 1278
Ile Tyr Ile Ile Val Gly Met Glu Ile Val Phe Ile Ala Phe Lys Leu
360 365 370

gtg caa aac agg ctg att gac ata tac aaa aat gtt atg cta ttc ttt 1326
Val Gln Asn Arg Leu Ile Asp Ile Tyr Lys Asn Val Met Leu Phe Phe
375 380 385 390

gca aaa ggg aag ttt tac cac ctt gtt aaa aag tga aggtttcatt 1372
Ala Lys Gly Lys Phe Tyr His Leu Val Lys Lys *
395 400

atctctcagg tgacagacac tggctgagct gggttttcttg tgttgctctt cagggtcatg 1432
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<210> 44
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<212> PRT
<213> Homo sapiens

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35 40 45
Thr Tyr Ala Leu Val Gly Ala Val Val Phe Ser Ala Ile Glu Asp Gly
50 55 60
Gln Val Leu Val Ala Ala Asp Asp Gly Glu Phe Glu Lys Phe Leu Glu
65 70 75 80
Glu Leu Cys Arg Ile Leu Asn Cys Ser Glu Thr Val Val Glu Asp Arg
85 90 95
Lys Gln Asp Leu Gln Gly His Leu Gln Lys Val Lys Pro Gln Trp Phe
100 105 110
Asn Arg Thr Thr His Trp Ser Phe Leu Ser Ser Leu Phe Cys Cys
115 120 125
Thr Val Phe Ser Thr Val Gly Tyr Gly Tyr Ile Tyr Pro Val Thr Arg
130 135 140
Leu Gly Lys Tyr Leu Cys Met Leu Tyr Ala Leu Phe Gly Ile Pro Leu
145 150 155 160
Met Phe Leu Val Leu Thr Asp Thr Gly Asp Ile Leu Ala Thr Ile Leu
165 170 175
Ser Thr Ser Tyr Asn Arg Phe Arg Lys Phe Pro Phe Phe Thr Arg Pro
180 185 190
Leu Leu Ser Lys Trp Cys Pro Lys Ser Leu Phe Lys Lys Lys Pro Asp
195 200 205

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Trp Asp Asn Leu Arg Glu Ala Thr Ser Tyr Pro Asn Leu Cys Leu Gln				
90 95 100				
aac tca gag tgg ctg ctc tta gat caa cac atg ctc aag gtg cat tac	449			
Asn Ser Glu Trp Leu Leu Leu Asp Gln His Met Leu Lys Val His Tyr				
105 110 115				
ccg aaa ttc gga gtg tca gaa gac tgc ctc tac ctg aac atc tat gcg	497			
Pro Lys Phe Gly Val Ser Glu Asp Cys Leu Tyr Leu Asn Ile Tyr Ala				
120 125 130				
cct gcc cac gcc gat aca ggc tcc aag ctc ccc gtc ttg gtg tgg ttc	545			
Pro Ala His Ala Asp Thr Gly Ser Lys Leu Pro Val Leu Val Trp Phe				
135 140 145 150				
cca gga ggt gcc ttc aag act ggc tca gcc tcc atc ttt gat ggg tcc	593			
Pro Gly Gly Ala Phe Lys Thr Gly Ser Ala Ser Ile Phe Asp Gly Ser				
155 160 165				
gcc ctg gct gcc tat gag gac gtg ctg gtt gtg gtc gtc cag tac cgg	641			
Ala Leu Ala Ala Tyr Glu Asp Val Leu Val Val Val Val Gln Tyr Arg				
170 175 180				
cta gga ata ttt ggt ttc ttc acc aca tgg gat cag cat gct ccg ggg	689			
Leu Gly Ile Phe Gly Phe Phe Thr Thr Trp Asp Gln His Ala Pro Gly				
185 190 195				
aac tgg gcc ttc aag gac cag gtg gct gct ctg tcc tgg gtc cag aag	737			
Asn Trp Ala Phe Lys Asp Gln Val Ala Ala Leu Ser Trp Val Gln Lys				
200 205 210				
aac atc gag ttc ttc ggt ggg gac ccc agc tct gtg acc atc ttt ggc	785			
Asn Ile Glu Phe Phe Gly Gly Asp Pro Ser Ser Val Thr Ile Phe Gly				
215 220 225 230				
gag tcc gcg gga gcc ata agt gtt tct agt ctt ata ctg tct ccc atg	833			
Glu Ser Ala Gly Ala Ile Ser Val Ser Ser Leu Ile Leu Ser Pro Met				
235 240 245				
gcc aaa ggc tta ttc cac aaa gcc atc atg gag agt ggg gtg gcc atc	881			
Ala Lys Gly Leu Phe His Lys Ala Ile Met Glu Ser Gly Val Ala Ile				
250 255 260				
atc cct tac ctg gag gcc cat gat tat gag aag agt gag gac ctg cag	929			
Ile Pro Tyr Leu Glu Ala His Asp Tyr Glu Lys Ser Glu Asp Leu Gln				
265 270 275				
gtg gtt gca cat ttc tgt ggt aac aat gcg tca gac tct gag gcc ctg	977			
Val Val Ala His Phe Cys Gly Asn Asn Ala Ser Asp Ser Glu Ala Leu				
280 285 290				
ctg agg tgc ctg agg aca aaa ccc tcc aag gag ctg ctg acc ctc agc	1025			
Leu Arg Cys Leu Arg Thr Lys Pro Ser Lys Glu Leu Leu Thr Leu Ser				
295 300 305 310				
cag aaa aca aag tct ttc act cga gtg gtt gat ggt gct ttc ttt cct	1073			
Gln Lys Thr Lys Ser Phe Thr Arg Val Val Asp Gly Ala Phe Phe Pro				
315 320 325				

aat gag cct cta gat cta ttg tct cag aaa gca ttt aaa gca att cct	1121
Asn Glu Pro Leu Asp Leu Leu Ser Gln Lys Ala Phe Lys Ala Ile Pro	
330 335 340	
tcc atc atc gga gtc aat aac cac gag tgt ggc ttc ctg ctg cct atg	1169
Ser Ile Ile Gly Val Asn Asn His Glu Cys Gly Phe Leu Leu Pro Met	
345 350 355	
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Lys Glu Ala Pro Glu Ile Leu Ser Gly Ser Asn Lys Ser Leu Ala Leu	
360 365 370	
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His Leu Ile Gln Asn Ile Leu His Ile Pro Pro Gln Tyr Leu His Leu	
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gtg gct aat gaa tac ttc cat gac aag cac tcc ctg act gaa atc cga	1313
Val Ala Asn Glu Tyr Phe His Asp Lys His Ser Leu Thr Glu Ile Arg	
395 400 405	
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Asp Ser Leu Leu Asp Leu Leu Gly Asp Val Phe Phe Val Val Pro Ala	
410 415 420	
ctg atc aca gct cga tat cac aga gat gct ggt gca cct gtc tac ttc	1409
Leu Ile Thr Ala Arg Tyr His Arg Asp Ala Gly Ala Pro Val Tyr Phe	
425 430 435	
tat gag ttt cgg cac cgg cct cag tgc ttt gaa gac acg aag ccg gct	1457
Tyr Glu Phe Arg His Arg Pro Gln Cys Phe Glu Asp Thr Lys Pro Ala	
440 445 450	
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Phe Val Lys Ala Asp His Ala Asp Glu Val Arg Phe Val Phe Gly Gly	
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gcc ttc ctg aag ggg gac att gtt atg ttc gaa gga gcc acg gag gag	1553
Ala Phe Leu Lys Gly Asp Ile Val Met Phe Glu Gly Ala Thr Glu Glu	
475 480 485	
gag aag tta ctg agc cgg aag atg atg aaa tac tgg gct acc ttt gct	1601
Glu Lys Leu Leu Ser Arg Lys Met Met Lys Tyr Trp Ala Thr Phe Ala	
490 495 500	
cga acc ggg aat cct aat ggg aac gac ctg tct ctg tgg cca gct tat	1649
Arg Thr Gly Asn Pro Asn Gly Asn Asp Leu Ser Leu Trp Pro Ala Tyr	
505 510 515	
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Asn Leu Thr Glu Gln Tyr Leu Gln Leu Asp Leu Asn Met Ser Leu Gly	
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Gln Arg Leu Lys Glu Pro Arg Val Asp Phe Trp Thr Ser Thr Ile Pro	
535 540 545 550	
ctg atc ctg tct gcc tcc gac atg ctc cac agt cct ctt tct tcc tta	1793
Leu Ile Leu Ser Ala Ser Asp Met Leu His Ser Pro Leu Ser Ser Leu	
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 ctgatatttt atggacttag gaatgatcct tacagaattc ttttcaacat caaaaagtgc 2021  
 aatttgtctt ggaaggcaac aagatttctt caataaattt ggaagagggc tggcctatta 2081  
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 Ser Ala Glu Gly Pro Gln Arg Asn Thr Arg Leu Gly Trp Ile Gln Gly  
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 Lys Gln Val Thr Val Leu Gly Ser Pro Val Pro Val Asn Val Phe Leu  
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 Gly Val Pro Phe Ala Ala Pro Pro Leu Gly Ser Leu Arg Phe Thr Asn  
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 Pro Gln Pro Ala Ser Pro Trp Asp Asn Leu Arg Glu Ala Thr Ser Tyr  
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 Pro Asn Leu Cys Leu Gln Asn Ser Glu Trp Leu Leu Leu Asp Gln His  
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 Tyr Leu Asn Ile Tyr Ala Pro Ala His Ala Asp Thr Gly Ser Lys Leu  
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 Pro Val Leu Val Trp Phe Pro Gly Gly Ala Phe Lys Thr Gly Ser Ala  
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 Val Val Val Gln Tyr Arg Leu Gly Ile Phe Gly Phe Phe Thr Thr Trp  
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 Asp Gln His Ala Pro Gly Asn Trp Ala Phe Lys Asp Gln Val Ala Ala  
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 Lys Ser Glu Asp Leu Gln Val Val Ala His Phe Cys Gly Asn Asn Ala  
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 Asp Gly Ala Phe Phe Pro Asn Glu Pro Leu Asp Leu Leu Ser Gln Lys  
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Tyr Pro Cys Val Gln Val Tyr Val Asn Asn Ser Glu Ser Asn Ser Arg
85 90 95

gcg ctg ctg cac agc gac gag cac cag ctc ctg acc aac ccc aag tgc 394
Ala Leu Leu His Ser Asp Glu His Gln Leu Leu Thr Asn Pro Lys Cys
100 105 110

tcc tat atc cct ccc tgt aag aga gaa aat cag aag aat ttg gaa agt 442
Ser Tyr Ile Pro Pro Cys Lys Arg Glu Asn Gln Lys Asn Leu Glu Ser
115 120 125

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Val Met Asn Trp Gln Gln Tyr Trp Lys Asp Glu Ile Gly Ser Gln Pro
130 135 140 145

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Phe Thr Cys Tyr Phe Asn Gln His Gln Arg Pro Asp Asp Val Leu Leu
150 155 160

cat cgc act cat gat gag att gtc ctc ctg cat tgc ttc ctc tgg ccc 586
His Arg Thr His Asp Glu Ile Val Leu Leu His Cys Phe Leu Trp Pro
165 170 175

ctg gtg aca ttt gtg gtg ggc gtt ctc att gtg gtc ctg acc atc tgt 634
Leu Val Thr Phe Val Val Gly Val Leu Ile Val Val Leu Thr Ile Cys
180 185 190

gcc aag agc ttg gcg gtc aag gcg gaa gcc atg aag aag cgc aag ttc 682
Ala Lys Ser Leu Ala Val Lys Ala Glu Ala Met Lys Lys Arg Lys Phe
195 200 205

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Ser *
210

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aaaaaaaaa 1107

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<213> Homo sapiens

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35 40 45

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Gln	Tyr	Pro	Cys	Val	Gln	Val	Tyr	Val	Asn	Asn	Ser	Glu	Ser	Asn	Ser
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Arg	Ala	Leu	Leu	His	Ser	Asp	Glu	His	Gln	Leu	Leu	Thr	Asn	Pro	Lys
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Pro	Phe	Thr	Cys	Tyr	Phe	Asn	Gln	His	Gln	Arg	Pro	Asp	Asp	Val	Leu
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Leu	His	Arg	Thr	His	Asp	Glu	Ile	Val	Leu	Leu	His	Cys	Phe	Leu	Trp
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Pro	Leu	Val	Thr	Phe	Val	Val	Gly	Val	Leu	Ile	Val	Val	Leu	Thr	Ile
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Cys	Ala	Lys	Ser	Leu	Ala	Val	Lys	Ala	Glu	Ala	Met	Lys	Lys	Arg	Lys
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cag aag cta cag atg gag agc cca gat ctg ccc aag ccg ctc agc cgc															96	
Gln	Lys	Leu	Gln	Met	Glu	Ser	Pro	Asp	Leu	Pro	Lys	Pro	Leu	Ser	Arg	
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atg tcc cgc cgg gcc tcc ctg tca gac att ggc ttt ggg aaa ctg gaa															144	
Met	Ser	Arg	Arg	Ala	Ser	Leu	Ser	Asp	Ile	Gly	Phe	Gly	Lys	Leu	Glu	
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aca tac gtg aaa ctg gac aaa ctg gga gag ggc acc tat gcc aca gtc															192	
Thr	Tyr	Val	Lys	Leu	Asp	Lys	Leu	Gly	Glu	Gly	Thr	Tyr	Ala	Thr	Val	
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ttc aaa ggg cgc agc aaa ctg acg gag aac ctt gtg gcc ctg aaa gag															240	
Phe	Lys	Gly	Arg	Ser	Lys	Leu	Thr	Glu	Asn	Leu	Val	Ala	Leu	Lys	Glu	
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atc cgg ctg gag cac gag gag gga gcg ccc tgc act gcc atc cga gag															288	
Ile	Arg	Leu	Glu	His	Glu	Glu	Gly	Ala	Pro	Cys	Thr	Ala	Ile	Arg	Glu	
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gtg tct ctg ctg aag aac ctg aag cac gcc aat att gtg acc ctg cat															336	
Val	Ser	Leu	Leu	Lys	Asn	Leu	Lys	His	Ala	Asn	Ile	Val	Thr	Leu	His	

100					105					110						
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Asp	Leu	Ile	His	Thr	Asp	Arg	Ser	Leu	Thr	Leu	Val	Phe	Glu	Tyr	Leu	
		115					120					125				
gac	agt	gac	ctg	aag	cag	tat	ctg	gac	cac	tgt	ggg	aac	ctc	atg	agc	432
Asp	Ser	Asp	Leu	Lys	Gln	Tyr	Leu	Asp	His	Cys	Gly	Asn	Leu	Met	Ser	
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atg	cac	aac	gtc	aag	att	ttc	atg	ttc	cag	ctg	ctc	cgg	ggc	ctc	gcc	480
Met	His	Asn	Val	Lys	Ile	Phe	Met	Phe	Gln	Leu	Leu	Arg	Gly	Leu	Ala	
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tac	tgt	cac	acc	cgc	aag	atc	ctg	cac	cgg	gac	ctg	aag	ccc	cag	aac	528
Tyr	Cys	His	Thr	Arg	Lys	Ile	Leu	His	Arg	Asp	Leu	Lys	Pro	Gln	Asn	
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ctg	ctc	atc	aac	gag	agg	ggg	gag	ctg	aag	ctg	gcc	gac	ttt	gga	ctg	576
Leu	Leu	Ile	Asn	Glu	Arg	Gly	Glu	Leu	Lys	Leu	Ala	Asp	Phe	Gly	Leu	
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gcc	agg	gcc	aag	tca	gtg	ccc	aca	aag	act	tac	tcc	aat	gag	gtg	gtg	624
Ala	Arg	Ala	Lys	Ser	Val	Pro	Thr	Lys	Thr	Tyr	Ser	Asn	Glu	Val	Val	
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acc	ctg	tgg	tac	agg	ccc	ccc	gat	gtg	ctg	ctg	gga	tcc	aca	gag	tac	672
Thr	Leu	Trp	Tyr	Arg	Pro	Pro	Asp	Val	Leu	Leu	Gly	Ser	Thr	Glu	Tyr	
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Ser	Thr	Pro	Ile	Ala	Met	Trp	Gly	Val	Gly	Cys	Ile	His	Tyr	Glu	Met	
225					230					235					240	
gcc	aca	ggg	agg	ccc	ctc	ttc	ccg	ggc	tcc	aca	gtc	aag	gag	gag	ctg	768
Ala	Thr	Gly	Arg	Pro	Leu	Phe	Pro	Gly	Ser	Thr	Val	Lys	Glu	Glu	Leu	
				245					250					255		
cac	ctc	atc	ttt	cgc	ctc	ctc	ggg	acc	ccc	aca	gaa	gag	acg	tgg	ccc	816
His	Leu	Ile	Phe	Arg	Leu	Leu	Gly	Thr	Pro	Thr	Glu	Glu	Thr	Trp	Pro	
			260					265					270			
ggc	gtg	acc	gcc	ttc	tct	gag	ttc	cgc	acc	tac	agc	ttc	ccc	tgc	tac	864
Gly	Val	Thr	Ala	Phe	Ser	Glu	Phe	Arg	Thr	Tyr	Ser	Phe	Pro	Cys	Tyr	
		275					280					285				
ctc	ccg	cag	ccg	ctc	atc	aac	cac	gcg	ccc	agg	ttg	gat	acg	gat	ggc	912
Leu	Pro	Gln	Pro	Leu	Ile	Asn	His	Ala	Pro	Arg	Leu	Asp	Thr	Asp	Gly	
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Ile	His	Leu	Leu	Ser	Ser	Leu	Leu	Val	Tyr	Glu	Ser	Lys	Ser	Arg	Met	
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Ser	Ala	Glu	Ala	Ala	Leu	Ser	His	Ser	Tyr	Phe	Arg	Ser	Leu	Gly	Glu	
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cgt	gtg	cac	cag	ctt	gaa	gac	act	gcc	tcc	atc	ttc	tcc	ctg	aag	gag	1056
Arg	Val	His	Gln	Leu	Glu	Asp	Thr	Ala	Ser	Ile	Phe	Ser	Leu	Lys	Glu	
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 pro gly arg gly lys asn arg arg gln ser ile phe \*  
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                           20                          25                          30  
  
 met ser arg arg ala ser leu ser asp ile gly phe gly lys leu glu  
           35                          40                          45  
 thr tyr val lys leu asp lys leu gly glu gly thr tyr ala thr val  
           50                          55                          60  
 phe lys gly arg ser lys leu thr glu asn leu val ala leu lys glu  
 65                          70                          75                          80  
 ile arg leu glu his glu glu gly ala pro cys thr ala ile arg glu  
                           85                          90                          95  
 val ser leu leu lys asn leu lys his ala asn ile val thr leu his  
                           100                          105                          110  
 asp leu ile his thr asp arg ser leu thr leu val phe glu tyr leu  
           115                          120                          125  
 asp ser asp leu lys gln tyr leu asp his cys gly asn leu met ser  
           130                          135                          140  
 met his asn val lys ile phe met phe gln leu arg gly leu ala  
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 tyr cys his thr arg lys ile leu his arg asp leu lys pro gln asn  
                           165                          170                          175  
 leu leu ile asn glu arg gly glu leu lys leu ala asp phe gly leu  
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 ser thr pro ile ala met trp gly val gly cys ile his tyr glu met  
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 ala thr gly arg pro leu phe pro gly ser thr val lys glu glu leu  
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 his leu ile phe arg leu leu gly thr pro thr glu glu thr trp pro  
                           260                          265                          270  
 gly val thr ala phe ser glu phe arg thr tyr ser phe pro cys tyr  
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 leu pro gln pro leu ile asn his ala pro arg leu asp thr asp gly  
           290                          295                          300  
 ile his leu leu ser ser leu leu val tyr glu ser lys ser arg met  
 305                          310                          315                          320  
 ser ala glu ala ala leu ser his ser tyr phe arg ser leu gly glu  
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Ile	Gln	Leu	Gln	Lys	Asp	Pro	Gly	Tyr	Arg	Gly	Leu	Ala	Phe	Gln	Gln
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Asn	Leu	Phe	Phe	Gln	Gly	Lys	Pro	Pro	Phe	Met	Thr	Gln	Gln	Gln	Met		
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Glu	Glu	Cys	Ser	Gln	Pro	Ala	Leu	Met	Lys	Ile	Lys	His	Val	Ser	Asn		
	60				65					70					75		
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Phe	Val	Arg	Lys	Tyr	Ser	Asp	Thr	Ile	Ala	Glu	Leu	Gln	Glu	Leu	Gln		
			80					85					90				
cct tcg gca aag gac ttc gaa gtc aga agt ctt gta ggt tgt ggt cac															339		
Pro	Ser	Ala	Lys	Asp	Phe	Glu	Val	Arg	Ser	Leu	Val	Gly	Cys	Gly	His		
			95					100					105				
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Phe	Ala	Glu	Val	Gln	Val	Val	Arg	Glu	Lys	Ala	Thr	Gly	Asp	Ile	Tyr		
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Ser	Phe	Phe	Glu	Glu	Glu	Arg	Asn	Ile	Leu	Ser	Arg	Ser	Thr	Ser	Pro		
	140				145					150					155		
tgg atc ccc caa tta cag tat gcc ttt cag gac aaa aat cac ctt tat															531		
Trp	Ile	Pro	Gln	Leu	Gln	Tyr	Ala	Phe	Gln	Asp	Lys	Asn	His	Leu	Tyr		
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Leu Met Glu Glu Tyr Gln Pro Gly Gly Asp Leu Leu Ser Leu Leu Asn	
175 180 185	
aga tat gag gac cag tta gat gaa aac ctg ata cag ttt tac cta gct	627
Arg Tyr Glu Asp Gln Leu Asp Glu Asn Leu Ile Gln Phe Tyr Leu Ala	
190 195 200	
gag ctg att ttg gct gtt cac agc gtt cat ctg atg gga tac gtg cat	675
Glu Leu Ile Leu Ala Val His Ser Val His Leu Met Gly Tyr Val His	
205 210 215	
cga gac atc aag cct gag aac att ctc gtt gac cgc aca gga cac atc	723
Arg Asp Ile Lys Pro Glu Asn Ile Leu Val Asp Arg Thr Gly His Ile	
220 225 230 235	
aag ctg gtg gat ttt gga tct gcc gcg aaa atg aat tca aac aag atg	771
Lys Leu Val Asp Phe Gly Ser Ala Ala Lys Met Asn Ser Asn Lys Met	
240 245 250	
gtg aat gcc aaa ctc ccg att ggg acc cca gat tac atg gct cct gaa	819
Val Asn Ala Lys Leu Pro Ile Gly Thr Pro Asp Tyr Met Ala Pro Glu	
255 260 265	
gtg ctg act gtg atg aac ggg gat gga aaa ggc acc tac ggc ctg gac	867
Val Leu Thr Val Met Asn Gly Asp Gly Lys Gly Thr Tyr Gly Leu Asp	
270 275 280	
tgt gac tgg tgg tca gtg ggc gtg att gcc tat gag atg att tat ggg	915
Cys Asp Trp Trp Ser Val Gly Val Ile Ala Tyr Glu Met Ile Tyr Gly	
285 290 295	
aga tcc ccc ttc gca gag gga acc tct gcc aga acc ttc aat aac att	963
Arg Ser Pro Phe Ala Glu Gly Thr Ser Ala Arg Thr Phe Asn Asn Ile	
300 305 310 315	
atg aat ttc cag cgg ttt ttg aaa ttt cca gat gac ccc aaa gtg agc	1011
Met Asn Phe Gln Arg Phe Leu Lys Phe Pro Asp Asp Pro Lys Val Ser	
320 325 330	
agt gac ttt ctt gat ctg att caa agc ttg ttg tgc ggc cag aaa gag	1059
Ser Asp Phe Leu Asp Leu Ile Gln Ser Leu Leu Cys Gly Gln Lys Glu	
335 340 345	
aga ctg aag ttt gaa ggt ctt tgc tgc cat cct ttc ttc tct aaa att	1107
Arg Leu Lys Phe Glu Gly Leu Cys Cys His Pro Phe Phe Ser Lys Ile	
350 355 360	
gac tgg aac aac att cgt aac tct cct ccc ccc ttc gtt ccc acc ctc	1155
Asp Trp Asn Asn Ile Arg Asn Ser Pro Pro Pro Phe Val Pro Thr Leu	
365 370 375	
aag tct gac gat gac acc tcc aat ttt gat gaa cca gag aag aat tcg	1203
Lys Ser Asp Asp Asp Thr Ser Asn Phe Asp Glu Pro Glu Lys Asn Ser	
380 385 390 395	
tgg gtt tca tcc tct ccg tgc cag ctg agc ccc tca ggc ttc tcg ggt	1251
Trp Val Ser Ser Ser Pro Cys Gln Leu Ser Pro Ser Gly Phe Ser Gly	
400 405 410	

gaa gaa ctg ccg ttt gtg ggg ttt tcg tac agc aag gca ctg ggg att	1299
Glu Glu Leu Pro Phe Val Gly Phe Ser Tyr Ser Lys Ala Leu Gly Ile	
415 420 425	
ctt ggt aga tct gag tct gtt gtg tcg ggt ctg gac tcc cct gcc aag	1347
Leu Gly Arg Ser Glu Ser Val Val Ser Gly Leu Asp Ser Pro Ala Lys	
430 435 440	
act agc tcc atg gaa aag aaa ctt ctc atc aaa agc aaa gag cta caa	1395
Thr Ser Ser Met Glu Lys Lys Leu Leu Ile Lys Ser Lys Glu Leu Gln	
445 450 455	
gac tct cag gac aag tgt cac aag atg gag cag gaa atg acc cgg tta	1443
Asp Ser Gln Asp Lys Cys His Lys Met Glu Gln Glu Met Thr Arg Leu	
460 465 470 475	
cat cgg aga gtg tca gag gtg gag gct gtg ctt agt cag aag gag gtg	1491
His Arg Arg Val Ser Glu Val Glu Ala Val Leu Ser Gln Lys Glu Val	
480 485 490	
gag ctg aag gcc tct gag act cag aga tcc ctc ctg gag cag gac ctt	1539
Glu Leu Lys Ala Ser Glu Thr Gln Arg Ser Leu Leu Glu Gln Asp Leu	
495 500 505	
gct acc tac atc aca gaa tgc agt agc tta aag cga agt ttg gag caa	1587
Ala Thr Tyr Ile Thr Glu Cys Ser Ser Leu Lys Arg Ser Leu Glu Gln	
510 515 520	
gca cgg atg gag gtg tcc cag gag gat gac aaa gca ctg cag ctt ctc	1635
Ala Arg Met Glu Val Ser Gln Glu Asp Asp Lys Ala Leu Gln Leu Leu	
525 530 535	
cat gat atc aga gag cag agc cgg aag ctc caa gaa atc aaa gag cag	1683
His Asp Ile Arg Glu Gln Ser Arg Lys Leu Gln Glu Ile Lys Glu Gln	
540 545 550 555	
gag tac cag gct caa gtg gaa gaa atg agg ttg atg atg aat cag ttg	1731
Glu Tyr Gln Ala Gln Val Glu Glu Met Arg Leu Met Met Asn Gln Leu	
560 565 570	
gaa gag gat ctt gtc tca gca aga aga cgg agt gat ctc tac gaa tct	1779
Glu Glu Asp Leu Val Ser Ala Arg Arg Arg Ser Asp Leu Tyr Glu Ser	
575 580 585	
gag ctg aga gag tct cgg ctt gct gct gaa gaa ttc aag cgg aaa gcg	1827
Glu Leu Arg Glu Ser Arg Leu Ala Ala Glu Glu Phe Lys Arg Lys Ala	
590 595 600	
aca gaa tgt cag cat aaa ctg ttg aag gct aag gat caa ggg aag cct	1875
Thr Glu Cys Gln His Lys Leu Leu Lys Ala Lys Asp Gln Gly Lys Pro	
605 610 615	
gaa gtg gga gaa tat gcg aaa ctg gag aag atc aat gct gag cag cag	1923
Glu Val Gly Glu Tyr Ala Lys Leu Glu Lys Ile Asn Ala Glu Gln Gln	
620 625 630 635	
ctc aaa att cag gag ctc caa gag aaa ctg gag aag gct gca aag gag	1971
Leu Lys Ile Gln Glu Leu Gln Glu Lys Leu Glu Lys Ala Ala Lys Glu	
640 645 650	
cga gcc gag agg gag ctg gag aag ctg cag aac cga gag gat tct tct	2019

Arg	Ala	Glu	Arg	Glu	Leu	Glu	Lys	Leu	Gln	Asn	Arg	Glu	Asp	Ser	Ser		
			655					660					665				
gaa	ggc	atc	aga	aag	aag	ctg	gtg	gaa	gct	gag	gaa	cgc	cgc	cat	tct	2067	
Glu	Gly	Ile	Arg	Lys	Lys	Leu	Val	Glu	Ala	Glu	Glu	Arg	Arg	His	Ser		
		670					675					680					
ctg	gag	aac	aag	gta	aag	aga	cta	gag	acc	atg	gag	cgt	aga	gaa	aac	2115	
Leu	Glu	Asn	Lys	Val	Lys	Arg	Leu	Glu	Thr	Met	Glu	Arg	Arg	Glu	Asn		
		685				690					695						
aga	ctg	aag	gat	gac	atc	cag	aca	aaa	tcc	caa	cag	atc	cag	cag	atg	2163	
Arg	Leu	Lys	Asp	Asp	Ile	Gln	Thr	Lys	Ser	Gln	Gln	Ile	Gln	Gln	Met		
700					705					710					715		
gct	gat	aaa	att	ctg	gag	ctc	gaa	gag	aaa	cat	cgg	gag	gcc	caa	gtc	2211	
Ala	Asp	Lys	Ile	Leu	Glu	Leu	Glu	Glu	Lys	His	Arg	Glu	Ala	Gln	Val		
				720				725						730			
tca	gcc	cag	cac	cta	gaa	gtg	cac	ctg	aaa	cag	aaa	gag	cag	cac	tat	2259	
Ser	Ala	Gln	His	Leu	Glu	Val	His	Leu	Lys	Gln	Lys	Glu	Gln	His	Tyr		
			735					740					745				
gag	gaa	aag	att	aaa	gtg	ttg	gac	aat	cag	ata	aag	aaa	gac	ctg	gct	2307	
Glu	Glu	Lys	Ile	Lys	Val	Leu	Asp	Asn	Gln	Ile	Lys	Lys	Asp	Leu	Ala		
		750					755					760					
gac	aag	gag	aca	ctg	gag	aac	atg	atg	cag	aga	cac	gag	gag	gag	gcc	2355	
Asp	Lys	Glu	Thr	Leu	Glu	Asn	Met	Met	Gln	Arg	His	Glu	Glu	Glu	Ala		
		765				770					775						
cat	gag	aag	ggc	aaa	att	ctc	agc	gaa	cag	aag	gcg	atg	atc	aat	gct	2403	
His	Glu	Lys	Gly	Lys	Ile	Leu	Ser	Glu	Gln	Lys	Ala	Met	Ile	Asn	Ala		
780					785					790					795		
atg	gat	tcc	aag	atc	aga	tcc	ctg	gaa	cag	agg	att	gtg	gaa	ctg	tct	2451	
Met	Asp	Ser	Lys	Ile	Arg	Ser	Leu	Glu	Gln	Arg	Ile	Val	Glu	Leu	Ser		
				800					805					810			
gaa	gcc	aat	aaa	ctt	gca	gca	aat	agc	agt	ctt	ttt	acc	caa	agg	aac	2499	
Glu	Ala	Asn	Lys	Leu	Ala	Ala	Asn	Ser	Ser	Leu	Phe	Thr	Gln	Arg	Asn		
			815					820					825				
atg	aag	gcc	caa	gaa	gag	atg	att	tct	gaa	ctc	agg	caa	cag	aaa	ttt	2547	
Met	Lys	Ala	Gln	Glu	Glu	Met	Ile	Ser	Glu	Leu	Arg	Gln	Gln	Lys	Phe		
		830					835					840					
tac	ctg	gag	aca	cag	gct	ggg	aag	ttg	gag	gcc	cag	aac	cga	aaa	ctg	2595	
Tyr	Leu	Glu	Thr	Gln	Ala	Gly	Lys	Leu	Glu	Ala	Gln	Asn	Arg	Lys	Leu		
		845				850					855						
gag	gag	cag	ctg	gag	aag	atc	agc	cac	caa	gac	cac	agt	gac	aag	aat	2643	
Glu	Glu	Gln	Leu	Glu	Lys	Ile	Ser	His	Gln	Asp	His	Ser	Asp	Lys	Asn		
860					865					870					875		
cgg	ctg	ctg	gaa	ctg	gag	aca	aga	ttg	cgg	gag	gtc	agt	cta	gag	cac	2691	
Arg	Leu	Leu	Glu	Leu	Glu	Thr	Arg	Leu	Arg	Glu	Val	Ser	Leu	Glu	His		
				880					885					890			
gag	gag	cag	aaa	ctg	gag	ctc	aag	cgc	cag	ctc	aca	gag	cta	cag	ctc	2739	

Glu	Glu	Gln	Lys	Leu	Glu	Leu	Lys	Arg	Gln	Leu	Thr	Glu	Leu	Gln	Leu		
			895					900					905				
tcc	ctg	cag	gag	cgc	gag	tca	cag	ttg	aca	gcc	ctg	cag	gct	gca	cgg	2787	
Ser	Leu	Gln	Glu	Arg	Glu	Ser	Gln	Leu	Thr	Ala	Leu	Gln	Ala	Ala	Arg		
		910					915					920					
gcg	gcc	ctg	gag	agc	cag	ctt	cgc	cag	gcg	aag	aca	gag	ctg	gaa	gag	2835	
Ala	Ala	Leu	Glu	Ser	Gln	Leu	Arg	Gln	Ala	Lys	Thr	Glu	Leu	Glu	Glu		
		925				930					935						
acc	aca	gca	gaa	gct	gaa	gag	gag	atc	cag	gca	ctc	acg	gca	cat	aga	2883	
Thr	Thr	Ala	Glu	Ala	Glu	Glu	Glu	Ile	Gln	Ala	Leu	Thr	Ala	His	Arg		
					945					950					955		
gat	gaa	atc	cag	cgc	aaa	ttt	gat	gct	ctt	cgt	aac	agc	tgt	act	gta	2931	
Asp	Glu	Ile	Gln	Arg	Lys	Phe	Asp	Ala	Leu	Arg	Asn	Ser	Cys	Thr	Val		
				960					965					970			
atc	aca	gac	ctg	gag	gag	cag	cta	aac	cag	ctg	acc	gag	gac	aac	gct	2979	
Ile	Thr	Asp	Leu	Glu	Glu	Gln	Leu	Asn	Gln	Leu	Thr	Glu	Asp	Asn	Ala		
			975					980					985				
gaa	ctc	aac	aac	caa	aac	ttc	tac	ttg	tcc	aaa	caa	ctc	gat	gag	gct	3027	
Glu	Leu	Asn	Asn	Gln	Asn	Phe	Tyr	Leu	Ser	Lys	Gln	Leu	Asp	Glu	Ala		
		990					995					1000					
tct	ggc	gcc	aac	gac	gag	att	gta	caa	ctg	cga	agt	gaa	gtg	gac	cat	3075	
Ser	Gly	Ala	Asn	Asp	Glu	Ile	Val	Gln	Leu	Arg	Ser	Glu	Val	Asp	His		
		1005					1010				1015						
ctc	cgc	cgg	gag	atc	acg	gaa	cga	gag	atg	cag	ctt	acc	agc	cag	aag	3123	
Leu	Arg	Arg	Glu	Ile	Thr	Glu	Arg	Glu	Met	Gln	Leu	Thr	Ser	Gln	Lys		
					1025					1030					1035		
caa	acg	atg	gag	gct	ctg	aag	acc	acg	tgc	acc	atg	ctg	gag	gaa	cag	3171	
Gln	Thr	Met	Glu	Ala	Leu	Lys	Thr	Thr	Cys	Thr	Met	Leu	Glu	Glu	Gln		
					1040				1045					1050			
gtc	atg	gat	ttg	gag	gcc	cta	aac	gat	gag	ctg	cta	gaa	aaa	gag	cgg	3219	
Val	Met	Asp	Leu	Glu	Ala	Leu	Asn	Asp	Glu	Leu	Leu	Glu	Lys	Glu	Arg		
			1055					1060					1065				
cag	tgg	gag	gcc	tgg	agg	agc	gtc	ctg	ggg	gat	gag	aaa	tcc	cag	ttt	3267	
Gln	Trp	Glu	Ala	Trp	Arg	Ser	Val	Leu	Gly	Asp	Glu	Lys	Ser	Gln	Phe		
		1070					1075					1080					
gag	tgt	cgg	gtt	cga	gag	ctg	cag	aga	atg	ctg	gac	acc	gag	aaa	cag	3315	
Glu	Cys	Arg	Val	Arg	Glu	Leu	Gln	Arg	Met	Leu	Asp	Thr	Glu	Lys	Gln		
		1085				1090					1095						
agc	agg	gcg	aga	gcc	gat	cag	cgg	atc	acc	gag	tct	cgc	cag	gtg	gtg	3363	
Ser	Arg	Ala	Arg	Ala	Asp	Gln	Arg	Ile	Thr	Glu	Ser	Arg	Gln	Val	Val		
		1100			1105				1110						1115		
gag	ctg	gca	gtg	aag	gag	cac	aag	gct	gag	att	ctc	gct	ctg	cag	cag	3411	
Glu	Leu	Ala	Val	Lys	Glu	His	Lys	Ala	Glu	Ile	Leu	Ala	Leu	Gln	Gln		
				1120					1125					1130			
gct	ctc	aaa	gag	cag	aag	ctg	aag	gcc	gag	agc	ctc	tct	gac	aag	ctc	3459	

Ala Leu Lys Glu Gln Lys Leu Lys	Ala Glu Ser Leu Ser	Asp Lys Leu	
1135	1140	1145	
aat gac ctg gag aag aag cat gct atg ctt gaa atg aat gcc cga agc	3507		
Asn Asp Leu Glu Lys Lys His Ala Met Leu Glu Met Asn Ala Arg Ser			
1150	1155	1160	
tta cag cag aag ctg gag act gaa cga gag ctc aaa cag agg ctt ctg	3555		
Leu Gln Gln Lys Leu Glu Thr Glu Arg Glu Leu Lys Gln Arg Leu Leu			
1165	1170	1175	
gaa gag caa gcc aaa tta cag cag cag atg gac ctg cag aaa aat cac	3603		
Glu Glu Gln Ala Lys Leu Gln Gln Gln Met Asp Leu Gln Lys Asn His			
1180	1185	1190	1195
att ttc cgt ctg act caa gga ctg caa gaa gct cta gat cgg gct gat	3651		
Ile Phe Arg Leu Thr Gln Gly Leu Gln Glu Ala Leu Asp Arg Ala Asp			
1200	1205	1210	
cta ctg aag aca gaa aga agt gac ttg gag tat cag ctg gaa aac att	3699		
Leu Leu Lys Thr Glu Arg Ser Asp Leu Glu Tyr Gln Leu Glu Asn Ile			
1215	1220	1225	
cag gtt ctc tat tct cat gaa aag gtg aaa atg gaa ggc act att tct	3747		
Gln Val Leu Tyr Ser His Glu Lys Val Lys Met Glu Gly Thr Ile Ser			
1230	1235	1240	
caa caa acc aaa ctc att gat ttt ctg caa gcc aaa atg gac caa cct	3795		
Gln Gln Thr Lys Leu Ile Asp Phe Leu Gln Ala Lys Met Asp Gln Pro			
1245	1250	1255	
gct aaa aag aaa aag ggt tta ttt agt cga cgg aaa gag gac cct gct	3843		
Ala Lys Lys Lys Lys Gly Leu Phe Ser Arg Arg Lys Glu Asp Pro Ala			
1260	1265	1270	1275
tta ccc aca cag gtt cct ctg cag tac aat gag ctg aag ctg gcc ctg	3891		
Leu Pro Thr Gln Val Pro Leu Gln Tyr Asn Glu Leu Lys Leu Ala Leu			
1280	1285	1290	
gag aag gag aaa gct cgc tgt gca gag cta gag gaa gcc ctt cag aag	3939		
Glu Lys Glu Lys Ala Arg Cys Ala Glu Leu Glu Glu Ala Leu Gln Lys			
1295	1300	1305	
acc cgc atc gag ctc cgg tcc gcc cgg gag gaa gct gcc cac cgc aaa	3987		
Thr Arg Ile Glu Leu Arg Ser Ala Arg Glu Glu Ala Ala His Arg Lys			
1310	1315	1320	
gca acg gac cac cca cac cca tcc acg cca gcc acc gcg agg cag cag	4035		
Ala Thr Asp His Pro His Pro Ser Thr Pro Ala Thr Ala Arg Gln Gln			
1325	1330	1335	
atc gcc atg tcc gcc atc gtg cgg tcg cca gag cac cag ccc agt gcc	4083		
Ile Ala Met Ser Ala Ile Val Arg Ser Pro Glu His Gln Pro Ser Ala			
1340	1345	1350	1355
atg agc ctg ctg gcc ccg cca tcc agc cgc aga aag gag tct tca act	4131		
Met Ser Leu Leu Ala Pro Pro Ser Ser Arg Arg Lys Glu Ser Ser Thr			
1360	1365	1370	
cca gag gaa ttt agt cgg cgt ctt aag gaa cgc atg cac cac aat att	4179		
Pro Glu Glu Phe Ser Arg Arg Leu Lys Glu Arg Met His His Asn Ile			

1375					1380					1385						
cct	cac	cga	ttc	aac	gta	gga	ctg	aac	atg	cga	gcc	aca	aag	tgt	gct	4227
Pro	His	Arg	Phe	Asn	Val	Gly	Leu	Asn	Met	Arg	Ala	Thr	Lys	Cys	Ala	
		1390					1395				1400					
gtg	tgt	ctg	gat	acc	gtg	cac	ttt	gga	cgc	cag	gca	tcc	aaa	tgt	ctc	4275
Val	Cys	Leu	Asp	Thr	Val	His	Phe	Gly	Arg	Gln	Ala	Ser	Lys	Cys	Leu	
	1405					1410					1415					
gaa	tgt	cag	gtg	atg	tgt	cac	ccc	aag	tgc	tcc	acg	tgc	ttg	cca	gcc	4323
Glu	Cys	Gln	Val	Met	Cys	His	Pro	Lys	Cys	Ser	Thr	Cys	Leu	Pro	Ala	
1420					1425					1430					1435	
acc	tgc	ggc	ttg	cct	gct	gaa	tat	gcc	aca	cac	ttc	acc	gag	gcc	ttc	4371
Thr	Cys	Gly	Leu	Pro	Ala	Glu	Tyr	Ala	Thr	His	Phe	Thr	Glu	Ala	Phe	
			1440					1445						1450		
tgc	cgt	gac	aaa	atg	aac	tcc	cca	ggt	ctc	cag	acc	aag	gag	ccc	agc	4419
Cys	Arg	Asp	Lys	Met	Asn	Ser	Pro	Gly	Leu	Gln	Thr	Lys	Glu	Pro	Ser	
		1455						1460					1465			
agc	agc	ttg	cac	ctg	gaa	ggg	tgg	atg	aag	gtg	ccc	agg	aat	aac	aaa	4467
Ser	Ser	Leu	His	Leu	Glu	Gly	Trp	Met	Lys	Val	Pro	Arg	Asn	Asn	Lys	
		1470					1475					1480				
cga	gga	cag	caa	ggc	tgg	gac	agg	aag	tac	att	gtc	ctg	gag	gga	tca	4515
Arg	Gly	Gln	Gln	Gly	Trp	Asp	Arg	Lys	Tyr	Ile	Val	Leu	Glu	Gly	Ser	
	1485					1490					1495					
aaa	gtc	ctc	att	tat	gac	aat	gaa	gcc	aga	gaa	gct	gga	cag	agg	ccg	4563
Lys	Val	Leu	Ile	Tyr	Asp	Asn	Glu	Ala	Arg	Glu	Ala	Gly	Gln	Arg	Pro	
1500					1505				1510						1515	
gtg	gaa	gaa	ttt	gag	ctg	tgc	ctt	ccc	gac	ggg	gat	gta	tct	att	cat	4611
Val	Glu	Glu	Phe	Glu	Leu	Cys	Leu	Pro	Asp	Gly	Asp	Val	Ser	Ile	His	
			1520					1525						1530		
ggt	gcc	gtt	ggt	gct	tcc	gaa	ctc	gca	aat	aca	gcc	aaa	gca	gaa	aaa	4659
Gly	Ala	Val	Gly	Ala	Ser	Glu	Leu	Ala	Asn	Thr	Ala	Lys	Ala	Glu	Lys	
		1535						1540					1545			
gca	gaa	gct	gat	gct	aaa	ctg	ctt	gga	aac	tcc	ctg	ctg	aaa	ctg	gaa	4707
Ala	Glu	Ala	Asp	Ala	Lys	Leu	Leu	Gly	Asn	Ser	Leu	Leu	Lys	Leu	Glu	
	1550					1555					1560					
ggt	gat	gac	cgt	cta	gac	atg	aac	tgc	acg	ctg	ccc	ttc	agt	gac	cag	4755
Gly	Asp	Asp	Arg	Leu	Asp	Met	Asn	Cys	Thr	Leu	Pro	Phe	Ser	Asp	Gln	
	1565				1570						1575					
gtg	gtg	ttg	gtg	ggc	acc	gag	gaa	ggg	ctc	tac	gcc	ctg	aat	gtc	ttg	4803
Val	Val	Leu	Val	Gly	Thr	Glu	Glu	Gly	Leu	Tyr	Ala	Leu	Asn	Val	Leu	
1580					1585				1590						1595	
aaa	aac	tcc	cta	acc	cat	gtc	cca	gga	att	gga	gca	gtc	ttc	caa	att	4851
Lys	Asn	Ser	Leu	Thr	His	Val	Pro	Gly	Ile	Gly	Ala	Val	Phe	Gln	Ile	
			1600					1605						1610		
tat	att	atc	aag	gac	ctg	gag	aag	cta	ctc	atg	ata	gca	gga	gaa	gag	4899
Tyr	Ile	Ile	Lys	Asp	Leu	Glu	Lys	Leu	Leu	Met	Ile	Ala	Gly	Glu	Glu	
			1615					1620						1625		



cgg gca ctg tgt ctt gtg gac gtg aag aaa gtg aaa cag tcc ctg gcc	4947
Arg Ala Leu Cys Leu Val Asp Val Lys Lys Val Lys Gln Ser Leu Ala	
1630 1635 1640	
cag tcc cac ctg cct gcc cag ccc gac atc tca ccc aac att ttt gaa	4995
Gln Ser His Leu Pro Ala Gln Pro Asp Ile Ser Pro Asn Ile Phe Glu	
1645 1650 1655	
gct gtc aag ggc tgc cac ttg ttt ggg gca ggc aag att gag aac ggg	5043
Ala Val Lys Gly Cys His Leu Phe Gly Ala Gly Lys Ile Glu Asn Gly	
1660 1665 1670 1675	
ctc tgc atc tgt gca gcc atg ccc agc aaa gtc gtc att ctc cgc tac	5091
Leu Cys Ile Cys Ala Ala Met Pro Ser Lys Val Val Ile Leu Arg Tyr	
1680 1685 1690	
aac gaa aac ctc agc aaa tac tgc atc cgg aaa gag ata gag acc tca	5139
Asn Glu Asn Leu Ser Lys Tyr Cys Ile Arg Lys Glu Ile Glu Thr Ser	
1695 1700 1705	
gag ccc tgc agc tgt atc cac ttc acc aat tac agt atc ctc att gga	5187
Glu Pro Cys Ser Cys Ile His Phe Thr Asn Tyr Ser Ile Leu Ile Gly	
1710 1715 1720	
acc aat aaa ttc tac gaa atc gac atg aag cag tac acg ctc gag gaa	5235
Thr Asn Lys Phe Tyr Glu Ile Asp Met Lys Gln Tyr Thr Leu Glu Glu	
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Phe Leu Asp Lys Asn Asp His Ser Leu Ala Pro Ala Val Phe Ala Ala	
1740 1745 1750 1755	
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Ser Ser Asn Ser Phe Pro Val Ser Ile Val Gln Val Asn Ser Ala Gly	
1760 1765 1770	
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Gln Arg Glu Glu Tyr Leu Leu Cys Phe His Glu Phe Gly Val Phe Val	
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Asp Ser Tyr Gly Arg Arg Ser Arg Thr Asp Asp Leu Lys Trp Ser Arg	
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Leu Pro Leu Ala Phe Ala Tyr Arg Glu Pro Tyr Leu Phe Val Thr His	
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Phe Asn Ser Leu Glu Val Ile Glu Ile Gln Ala Arg Ser Ser Ala Gly	
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Thr Pro Ala Arg Ala Tyr Leu Asp Ile Pro Asn Pro Arg Tyr Leu Gly	
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Pro Ala Ile Ser Ser Gly Ala Ile Tyr Leu Ala Ser Ser Tyr Gln Asp	
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 Lys Leu Arg Val Ile Cys Cys Lys Gly Asn Leu Val Lys Glu Ser Gly  
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 Ser Pro Ala Pro Pro Glu Gly Pro Ser His Pro Arg Glu Pro Ser Thr  
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 Pro His Arg Tyr Arg Glu Gly Arg Thr Glu Leu Arg Arg Asp Lys Ser  
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 Pro Gly Arg Pro Leu Glu Arg Glu Lys Ser Pro Gly Arg Met Leu Ser  
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 Thr Arg Arg Glu Arg Ser Pro Gly Arg Leu Phe Glu Asp Ser Ser Arg  
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 Gly Arg Leu Pro Ala Gly Ala Val Arg Thr Pro Leu Ser Gln Val Asn  
 1980 1985 1990 1995

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 2015 2020 2025

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 2030 2035 2040

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 Glu Lys Ser Val Leu Arg Thr Asp Tyr Cys \*  
 2045 2050

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Ala	Glu	Pro	Ile 20	Ala	Ser	Arg	Ala	Ser 25	Arg	Leu	Asn	Leu	Phe 30	Phe	Gln
Gly	Lys	Pro 35	Pro	Phe	Met	Thr	Gln 40	Gln	Gln	Met	Ser	Pro 45	Leu	Ser	Arg
Glu	Gly 50	Ile	Leu	Asp	Ala	Leu 55	Phe	Val	Leu	Phe	Glu 60	Glu	Cys	Ser	Gln
Pro 65	Ala	Leu	Met	Lys 70	Ile	Lys	His	Val	Ser	Asn 75	Phe	Val	Arg	Lys	Tyr 80
Ser	Asp	Thr	Ile 85	Ala	Glu	Leu	Gln	Glu 90	Leu	Gln	Pro	Ser	Ala 95	Lys	Asp
Phe	Glu	Val 100	Arg	Ser	Leu	Val	Gly 105	Cys	Gly	His	Phe	Ala 110	Glu	Val	Gln
Val	Val 115	Arg	Glu	Lys	Ala	Thr	Gly 120	Asp	Ile	Tyr	Ala	Met 125	Lys	Val	Met
Lys	Lys 130	Lys	Ala	Leu	Leu	Ala 135	Gln	Glu	Gln	Val	Ser 140	Phe	Phe	Glu	Glu
Glu 145	Arg	Asn	Ile	Leu	Ser 150	Arg	Ser	Thr	Ser	Pro 155	Trp	Ile	Pro	Gln	Leu 160
Gln	Tyr	Ala	Phe 165	Gln	Asp	Lys	Asn	His 170	Leu	Tyr	Leu	Met	Glu	Glu	Tyr 175
Gln	Pro	Gly 180	Gly	Asp	Leu	Leu	Ser 185	Leu	Leu	Asn	Arg	Tyr	Glu 190	Asp	Gln
Leu	Asp 195	Glu	Asn	Leu	Ile	Gln	Phe 200	Tyr	Leu	Ala	Glu 205	Leu	Ile	Leu	Ala
Val	His 210	Ser	Val	His	Leu	Met 215	Gly	Tyr	Val	His 220	Arg	Asp	Ile	Lys	Pro
Glu 225	Asn	Ile	Leu	Val 230	Asp	Arg	Thr	Gly	His 235	Ile	Lys	Leu	Val	Asp	Phe 240
Gly	Ser	Ala	Ala 245	Lys	Met	Asn	Ser	Asn 250	Lys	Met	Val	Asn	Ala 255	Lys	Leu
Pro	Ile	Gly 260	Thr	Pro	Asp	Tyr	Met 265	Ala	Pro	Glu	Val	Leu	Thr 270	Val	Met
Asn	Gly 275	Asp	Gly	Lys	Gly	Thr	Tyr 280	Gly	Leu	Asp	Cys	Asp 285	Trp	Trp	Ser
Val	Gly 290	Val	Ile	Ala	Tyr	Glu 295	Met	Ile	Tyr	Gly 300	Arg	Ser	Pro	Phe	Ala
Glu 305	Gly	Thr	Ser	Ala 310	Arg	Thr	Phe	Asn	Asn 315	Ile	Met	Asn	Phe	Gln	Arg 320
Phe	Leu	Lys	Phe 325	Pro	Asp	Asp	Pro	Lys 330	Val	Ser	Ser	Asp	Phe	Leu 335	Asp
Leu	Ile	Gln 340	Ser	Leu	Leu	Cys	Gly 345	Gln	Lys	Glu	Arg	Leu	Lys 350	Phe	Glu
Gly	Leu 355	Cys	Cys	His	Pro	Phe	Phe 360	Ser	Lys	Ile	Asp 365	Trp	Asn	Asn	Ile
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Thr 385	Ser	Asn	Phe	Asp 390	Glu	Pro	Glu	Lys	Asn 395	Ser	Trp	Val	Ser	Ser	Ser 400
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Val	Gly	Phe 420	Ser	Tyr	Ser	Lys	Ala 425	Leu	Gly	Ile	Leu	Gly 430	Arg	Ser	Glu
Ser	Val 435	Val	Ser	Gly	Leu	Asp	Ser 440	Pro	Ala	Lys	Thr 445	Ser	Ser	Met	Glu
Lys	Lys 450	Leu	Leu	Ile	Lys	Ser 455	Lys	Glu	Leu	Gln 460	Asp	Ser	Gln	Asp	Lys
Cys 465	His	Lys	Met	Glu 470	Gln	Glu	Met	Thr 475	Arg	Leu 480	His	Arg	Arg	Val	Ser 485

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Val	Glu	Glu	Met	Arg	Leu	Met	Met	Asn	Gln	Leu	Glu	Glu	Asp	Leu	Val
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Ser	Ala	Arg	Arg	Arg	Ser	Asp	Leu	Tyr	Glu	Ser	Glu	Leu	Arg	Glu	Ser
			580					585					590		
Arg	Leu	Ala	Ala	Glu	Glu	Phe	Lys	Arg	Lys	Ala	Thr	Glu	Cys	Gln	His
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Lys	Leu	Leu	Lys	Ala	Lys	Asp	Gln	Gly	Lys	Pro	Glu	Val	Gly	Glu	Tyr
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Lys	Arg	Leu	Glu	Thr	Met	Glu	Arg	Arg	Glu	Asn	Arg	Leu	Lys	Asp	Asp
	690					695					700				
Ile	Gln	Thr	Lys	Ser	Gln	Gln	Ile	Gln	Gln	Met	Ala	Asp	Lys	Ile	Leu
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Glu	Leu	Glu	Glu	Lys	His	Arg	Glu	Ala	Gln	Val	Ser	Ala	Gln	His	Leu
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Gln	Leu	Arg	Gln	Ala	Lys	Thr	Glu	Leu	Glu	Glu	Thr	Thr	Ala	Glu	Ala
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Glu	Glu	Glu	Ile	Gln	Ala	Leu	Thr	Ala	His	Arg	Asp	Glu	Ile	Gln	Arg
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Lys	Phe	Asp	Ala	Leu	Arg	Asn	Ser	Cys	Thr	Val	Ile	Thr	Asp	Leu	Glu

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Lys Val Lys Lys Tyr Val Arg Val Ser Gln Asp Thr Pro Ser Ser Val	140	145	150	
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Ile Tyr His Leu Met Thr Gln His Trp Gly Leu Asp Val Pro Asn Leu	155	160	165	
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Leu Glu Gly Gly Pro Gly Thr Leu His Thr Ile Asp Asn Ala Thr Thr	330	335	340	345



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Val Ile Ala Gln Val Ala Asn Leu Pro Val Ser Asp Ile Thr Ile Ser	
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Gln Gln Asp Val Asp Val Ala Ile Leu Gln Ala Leu Leu Lys Ala Ser	
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Met Asp Glu Trp Gln Trp Lys Pro Ser Asp Leu His Pro Thr Met Thr	
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Ala Ala Leu Ile Ser Asn Lys Pro Glu Phe Val Lys Leu Phe Leu Glu	
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Asn Gly Val Gln Leu Lys Glu Phe Val Thr Trp Asp Thr Leu Leu Tyr	
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Leu Tyr Glu Asn Leu Asp Pro Ser Cys Leu Phe His Ser Lys Leu Gln	
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Lys Val Leu Val Glu Asp Pro Glu Arg Pro Ala Cys Ala Pro Ala Ala	
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Pro Arg Leu Gln Met His His Val Ala Gln Val Leu Arg Glu Leu Leu	
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Val Ser Leu Arg Ser Leu Tyr Lys Arg Ser Ser Gly His Val Thr Phe	
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Thr Met Asp Pro Ile Arg Asp Leu Leu Ile Trp Ala Ile Val Gln Asn	
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Tyr Glu His Arg Ala Ile Gly Val Phe Thr Glu Cys Tyr Arg Lys Asp	
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Lys Thr Thr Cys Leu Gln Leu Ala Leu Glu Ala Lys Asp Met Lys Phe	
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Val Ser His Gly Gly Ile Gln Ala Phe Leu Thr Lys Val Trp Trp Gly	
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Pro Phe Gly Asn Asn Asp Lys Gln Glu Ser Leu Ser Ser Trp Ile Pro
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65          70          75          80
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85          90          95
Gln His Leu Glu Ala Thr Lys Pro His Thr Phe Gln Gly Thr Gln
100          105          110
Trp Asp Pro Lys Lys His Val Gln Glu Met Pro Thr Asp Ala Phe Gly
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Asp Ile Val Phe Thr Gly Leu Ser Gln Lys Val Lys Lys Tyr Val Arg
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Val Ser Gln Asp Thr Pro Ser Ser Val Ile Tyr His Leu Met Thr Gln
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His Trp Gly Leu Asp Val Pro Asn Leu Leu Ile Ser Val Thr Gly Gly
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Ala Lys Asn Phe Asn Met Lys Pro Arg Leu Lys Ser Ile Phe Arg Arg
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Ser	Cys	Leu	Phe	His	Ser	Lys	Leu	Gln	Lys	Val	Leu	Val	Glu	Asp	Pro
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Ala	Leu	Glu	Ala	Lys	Asp	Met	Lys	Phe	Val	Ser	His	Gly	Gly	Ile	Gln
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Ala	Phe	Leu	Thr	Lys	Val	Trp	Trp	Gly	Gln	Leu	Ser	Val	Asp	Asn	Gly
			740					745					750		
Leu	Trp	Arg	Val	Thr	Leu	Cys	Met	Leu	Ala	Phe	Pro	Leu	Leu	Leu	Thr
		755					760					765			
Gly	Leu	Ile	Ser	Phe	Arg	Glu	Lys	Arg	Leu	Gln	Asp	Val	Gly	Thr	Pro
		770				775					780				
Ala	Ala	Arg	Ala	Arg	Ala	Phe	Phe	Thr	Ala	Pro	Val	Val	Val	Phe	His
785					790					795					800
Leu	Asn	Ile	Leu	Ser	Tyr	Phe	Ala	Phe	Leu	Cys	Leu	Phe	Ala	Tyr	Val
			805						810					815	
Leu	Met	Val	Asp	Phe	Gln	Pro	Val	Pro	Ser	Trp	Cys	Glu	Cys	Ala	Ile





Phe His Gly Pro Tyr Thr Val Gln Ala Gly Leu Pro Leu Asn Pro Met  
 1315 1320 1325  
 Gly Arg Thr Gly Leu Arg Gly Arg Gly Ser Leu Ser Cys Phe Gly Pro  
 1330 1335 1340  
 Asn His Thr Leu Tyr Pro Met Val Thr Arg Trp Arg Arg Asn Glu Asp  
 1345 1350 1355 1360  
 Gly Ala Ile Cys Arg Lys Ser Ile Lys Lys Met Leu Glu Val Leu Val  
 1365 1370 1375  
 Val Lys Leu Pro Leu Ser Glu His Trp Ala Leu Pro Gly Gly Ser Arg  
 1380 1385 1390  
 Glu Pro Gly Glu Met Leu Pro Arg Lys Leu Lys Arg Ile Leu Arg Gln  
 1395 1400 1405  
 Glu His Trp Pro Ser Phe Glu Asn Leu Leu Lys Cys Gly Met Glu Val  
 1410 1415 1420  
 Tyr Lys Gly Tyr Met Asp Asp Pro Arg Asn Thr Asp Asn Ala Trp Ile  
 1425 1430 1435 1440  
 Glu Thr Val Ala Val Ser Val His Phe Gln Asp Gln Asn Asp Val Glu  
 1445 1450 1455  
 Leu Asn Arg Leu Asn Ser Asn Leu His Ala Cys Asp Ser Gly Ala Ser  
 1460 1465 1470  
 Ile Arg Trp Gln Val Val Asp Arg Arg Ile Pro Leu Tyr Ala Asn His  
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 Lys Thr Leu Leu Gln Lys Ala Ala Ala Glu Phe Gly Ala His Tyr  
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 <212> DNA  
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<220>  
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 <222> (421)...(1770)

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 tggagctttt agagaactgt tgcccagcac cttaggcact tcagacattt catctcactc 180  
 atttttgtaa tttcactgta aaaatcacct gcacatttat aacactgtga ctctccactt 240  
 ctgctcaatg ctgaaaaggg gtccgcatac tgcggggagc tgtctaaggt gctgaagctt 300  
 cccaagcatc agtctacacc aacaccatgc gggggttagat tgtacatttt cattctgtct 360  
 ttctggttcc ccatgccttg gataagacta ttttcaggat cgtgaatatc tctccgtatc 420  
 atg gcc cac gtg aga cac ttt cgg aca tta gtt tcg gga ttt tac ttc 468  
 Met Ala His Val Arg His Phe Arg Thr Leu Val Ser Gly Phe Tyr Phe  
 1 5 10 15  
 tgg gaa gca gca ctg tta ctc agt ttg gtt gcc aca aag gaa aca gac 516  
 Trp Glu Ala Ala Leu Leu Leu Ser Leu Val Ala Thr Lys Glu Thr Asp  
 20 25 30  
 agt gca aga tct cga agt gct cca atg tca cct tct gat ttt ctg gat 564  
 Ser Ala Arg Ser Arg Ser Ala Pro Met Ser Pro Ser Asp Phe Leu Asp  
 35 40 45  
 aaa tta atg ggc agg aca tca gga tat gat gca aga atc aga ccc aat 612  
 Lys Leu Met Gly Arg Thr Ser Gly Tyr Asp Ala Arg Ile Arg Pro Asn  
 50 55 60  
 ttt aaa ggc cct cca gtt aat gtc aca tgc aac ata ttc atc aac agt 660  
 Phe Lys Gly Pro Pro Val Asn Val Thr Cys Asn Ile Phe Ile Asn Ser

65	70	75	80	
ttc ggc tct atc gca gag acg acc atg gat tac aga gtg aat atc ttt				708
Phe Gly Ser Ile Ala Glu Thr Thr Met Asp Tyr Arg Val Asn Ile Phe	85	90	95	
ctt cgt cag aaa tgg aat gat ccc cgc ctc gcg tac agt gaa tat cct				756
Leu Arg Gln Lys Trp Asn Asp Pro Arg Leu Ala Tyr Ser Glu Tyr Pro	100	105	110	
gac gac tct tta gac ctc gac ccc tcc atg ttg gac tcc att tgg aaa				804
Asp Asp Ser Leu Asp Leu Asp Pro Ser Met Leu Asp Ser Ile Trp Lys	115	120	125	
cct gat ttg ttc ttt gcc aat gaa aag ggt gcc aac ttt cat gaa gtc				852
Pro Asp Leu Phe Phe Ala Asn Glu Lys Gly Ala Asn Phe His Glu Val	130	135	140	
act aca gac aac aaa ttg cta aga att ttc aaa aat gga aat gtt ctt				900
Thr Thr Asp Asn Lys Leu Leu Arg Ile Phe Lys Asn Gly Asn Val Leu	145	150	155	160
tat tca ata aga tta aca tta aca ctt tcc tgt cca atg gat ctc aag				948
Tyr Ser Ile Arg Leu Thr Leu Thr Leu Ser Cys Pro Met Asp Leu Lys	165	170	175	
aat ttt ccc atg gat gta caa aca tgt ata atg caa ctg gaa agc ttt				996
Asn Phe Pro Met Asp Val Gln Thr Cys Ile Met Gln Leu Glu Ser Phe	180	185	190	
ggg tac aca atg aat gat ctc att ttt gaa tgg caa gat gag gca ccc				1044
Gly Tyr Thr Met Asn Asp Leu Ile Phe Glu Trp Gln Asp Glu Ala Pro	195	200	205	
gta caa gtg gca gaa gga ctc act ttg ccc cag ttt ctg ttg aaa gaa				1092
Val Gln Val Ala Glu Gly Leu Thr Leu Pro Gln Phe Leu Leu Lys Glu	210	215	220	
gaa aaa gat tta cga tac tgc act aaa cat tac aat aca gga aag ttt				1140
Glu Lys Asp Leu Arg Tyr Cys Thr Lys His Tyr Asn Thr Gly Lys Phe	225	230	235	240
acg tgt ata gaa gtg cga ttc cat ctg gag cga caa atg gga tac tat				1188
Thr Cys Ile Glu Val Arg Phe His Leu Glu Arg Gln Met Gly Tyr Tyr	245	250	255	
ctg atc cag atg tac att ccc agt ctc ctg att gtt att cta tcc tgg				1236
Leu Ile Gln Met Tyr Ile Pro Ser Leu Leu Ile Val Ile Leu Ser Trp	260	265	270	
gtt tcg ttc tgg atc aac atg gat gca gca ccg gcc agg gta gct ctg				1284
Val Ser Phe Trp Ile Asn Met Asp Ala Ala Pro Ala Arg Val Ala Leu	275	280	285	
ggg ata acc acc gtg cta acg atg act aca cag agt tca gga tca cga				1332
Gly Ile Thr Thr Val Leu Thr Met Thr Thr Gln Ser Ser Gly Ser Arg	290	295	300	
gct tcc ttg cca aaa gtt tca tat gtc aaa gct att gat att tgg atg				1380
Ala Ser Leu Pro Lys Val Ser Tyr Val Lys Ala Ile Asp Ile Trp Met	305	310	315	320

gca gta tgc ctc ctt ttt gtg ttt tca gca ctt ctg gag tat gca gct	1428
Ala Val Cys Leu Leu Phe Val Phe Ser Ala Leu Leu Glu Tyr Ala Ala	
325 330 335	
gta aat ttt gta tca aga caa cac aaa gaa ctt ctg aga ttt cga cga	1476
Val Asn Phe Val Ser Arg Gln His Lys Glu Leu Leu Arg Phe Arg Arg	
340 345 350	
aag aga aag aat aag gat gat gag gta agg gaa agc cga ttc agc ttc	1524
Lys Arg Lys Asn Lys Asp Asp Glu Val Arg Glu Ser Arg Phe Ser Phe	
355 360 365	
aca gcc tat gga atg gga cca tgt cta caa gca aag gat ggc atg act	1572
Thr Ala Tyr Gly Met Gly Pro Cys Leu Gln Ala Lys Asp Gly Met Thr	
370 375 380	
cca aag ggc ccc aac cac cct gtc cag gta atg cca aaa agt cct gat	1620
Pro Lys Gly Pro Asn His Pro Val Gln Val Met Pro Lys Ser Pro Asp	
385 390 395 400	
gaa atg agg aag gtc ttt atc gac cgg gcc aag aag att gat acc atc	1668
Glu Met Arg Lys Val Phe Ile Asp Arg Ala Lys Lys Ile Asp Thr Ile	
405 410 415	
tcc cga gcc tgc ttc cca tta gct ttt ttg att ttt aat att ttc tac	1716
Ser Arg Ala Cys Phe Pro Leu Ala Phe Leu Ile Phe Asn Ile Phe Tyr	
420 425 430	
tgg gtt atc tat aaa att ctt agg cat gag gat att cat cag cag caa	1764
Trp Val Ile Tyr Lys Ile Leu Arg His Glu Asp Ile His Gln Gln Gln	
435 440 445	
gat taa gtctctgggg gcatgcaaat gcaaatgggc aattcagaag aaagtgtctc	1820
Asp *	

tgccataggt gtgtatgtgt atatgtgtgc gtgtgggtata caaatgatga ccattgtatt	1880
aaaatggcat atggaaaagc tttgtatttt gggttagctat gcaaagtcac gagaaagatg	1940
agattctttt aatgaatata aaatattttat tagggggattc tatttccatat taattccagg	2000
tgatttgttt tttcacagta aaccatgtaa gtggaagctt tactgccaat gtgtttatat	2060
gttatataat atctcataat agtagacatg aaaactactt tgaaattcct tgatttgtaa	2120
ttcaatgcta ttaaatacata caaaagcaaa ttttgcacag taaactaata gtttgagatt	2180
taaaactatt ttctttatagt atagttacaa aatggggaaaa taattagtta cagtgggaaa	2240
ttcactcata ttaattggagg attgtacata taaatactat ttaacaaca tatgtaattt	2300
tgaaaatttt taaataagag cattaaaaga ctttaatgat ttggaatact aaatttaatt	2360
gtttagaata ttaagttttc ctctgtgcaa atttaaaaca aataacaaga gatcgtgtta	2420
cagtcacaat ctacttttct taaactttgt atctctagga acgaagggtg aaatacggga	2480
aacaactttg tttttaaata agtattatag ctatgtattt ttagttattg ccaaacttg	2540
aacaattcaa gccagcaccc ttgtttttgt tagactttta atagctactt aactgtatgt	2600
gattgtgttt aataatttga tataacagga caaaattcag taagactttt atatttttagt	2660
ttagaatgtg actttaaaaa tcaatgggat taaagtattt acattttgat aaaaatgaat	2720
acaatgaaaa caaaatggat tcatggaaga ttttttaata aaaaccattt tcccatcaat	2780
gttttatggg tctcaactcc tatctccaaa tataagtagg gaaagtttta attttaaatg	2840
atataagtaa gtcattttcta taaagtgagg actctttttc tattttctgaa ttaatgattt	2900
caaaatctaa gccattcgca agatgtgaat aatttttaaa gaaattttta cataaaattt	2960
ttcaatgacc ccattgggatt acttcaacaa aaacagagca ttagtaactt gttttttgca	3020
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<210> 56  
<211> 449

<212> PRT

<213> Homo sapiens

<400> 56

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		20						25					30		
Ser	Ala	Arg	Ser	Arg	Ser	Ala	Pro	Met	Ser	Pro	Ser	Asp	Phe	Leu	Asp
		35					40					45			
Lys	Leu	Met	Gly	Arg	Thr	Ser	Gly	Tyr	Asp	Ala	Arg	Ile	Arg	Pro	Asn
	50					55					60				
Phe	Lys	Gly	Pro	Pro	Val	Asn	Val	Thr	Cys	Asn	Ile	Phe	Ile	Asn	Ser
65					70					75				80	
Phe	Gly	Ser	Ile	Ala	Glu	Thr	Thr	Met	Asp	Tyr	Arg	Val	Asn	Ile	Phe
				85					90					95	
Leu	Arg	Gln	Lys	Trp	Asn	Asp	Pro	Arg	Leu	Ala	Tyr	Ser	Glu	Tyr	Pro
			100					105					110		
Asp	Asp	Ser	Leu	Asp	Leu	Asp	Pro	Ser	Met	Leu	Asp	Ser	Ile	Trp	Lys
		115					120					125			
Pro	Asp	Leu	Phe	Phe	Ala	Asn	Glu	Lys	Gly	Ala	Asn	Phe	His	Glu	Val
	130					135					140				
Thr	Thr	Asp	Asn	Lys	Leu	Leu	Arg	Ile	Phe	Lys	Asn	Gly	Asn	Val	Leu
145					150					155				160	
Tyr	Ser	Ile	Arg	Leu	Thr	Leu	Thr	Leu	Ser	Cys	Pro	Met	Asp	Leu	Lys
				165					170					175	
Asn	Phe	Pro	Met	Asp	Val	Gln	Thr	Cys	Ile	Met	Gln	Leu	Glu	Ser	Phe
			180					185					190		
Gly	Tyr	Thr	Met	Asn	Asp	Leu	Ile	Phe	Glu	Trp	Gln	Asp	Glu	Ala	Pro
		195					200					205			
Val	Gln	Val	Ala	Glu	Gly	Leu	Thr	Leu	Pro	Gln	Phe	Leu	Leu	Lys	Glu
	210					215					220				
Glu	Lys	Asp	Leu	Arg	Tyr	Cys	Thr	Lys	His	Tyr	Asn	Thr	Gly	Lys	Phe
225					230					235				240	
Thr	Cys	Ile	Glu	Val	Arg	Phe	His	Leu	Glu	Arg	Gln	Met	Gly	Tyr	Tyr
			245						250					255	
Leu	Ile	Gln	Met	Tyr	Ile	Pro	Ser	Leu	Leu	Ile	Val	Ile	Leu	Ser	Trp
			260					265					270		
Val	Ser	Phe	Trp	Ile	Asn	Met	Asp	Ala	Ala	Pro	Ala	Arg	Val	Ala	Leu
		275					280					285			
Gly	Ile	Thr	Thr	Val	Leu	Thr	Met	Thr	Thr	Gln	Ser	Ser	Gly	Ser	Arg
	290					295					300				
Ala	Ser	Leu	Pro	Lys	Val	Ser	Tyr	Val	Lys	Ala	Ile	Asp	Ile	Trp	Met
305					310					315				320	
Ala	Val	Cys	Leu	Leu	Phe	Val	Phe	Ser	Ala	Leu	Leu	Glu	Tyr	Ala	Ala
			325						330					335	
Val	Asn	Phe	Val	Ser	Arg	Gln	His	Lys	Glu	Leu	Leu	Arg	Phe	Arg	Arg
			340					345					350		
Lys	Arg	Lys	Asn	Lys	Asp	Asp	Glu	Val	Arg	Glu	Ser	Arg	Phe	Ser	Phe
		355				360						365			
Thr	Ala	Tyr	Gly	Met	Gly	Pro	Cys	Leu	Gln	Ala	Lys	Asp	Gly	Met	Thr
	370					375						380			
Pro	Lys	Gly	Pro	Asn	His	Pro	Val	Gln	Val	Met	Pro	Lys	Ser	Pro	Asp
385					390					395				400	
Glu	Met	Arg	Lys	Val	Phe	Ile	Asp	Arg	Ala	Lys	Lys	Ile	Asp	Thr	Ile
			405						410					415	
Ser	Arg	Ala	Cys	Phe	Pro	Leu	Ala	Phe	Leu	Ile	Phe	Asn	Ile	Phe	Tyr
			420					425					430		
Trp	Val	Ile	Tyr	Lys	Ile	Leu	Arg	His	Glu	Asp	Ile	His	Gln	Gln	Gln
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Asp

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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(2877)

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 acc atc atc cgc aag ttc gag ggc caa agt cgg aag ttc ctg att gcc 96  
 Thr Ile Ile Arg Lys Phe Glu Gly Gln Ser Arg Lys Phe Leu Ile Ala  
 20 25 30  
 aat gct cag atg gag aac tgc gcc atc att tac tgc aac gac ggc ttc 144  
 Asn Ala Gln Met Glu Asn Cys Ala Ile Ile Tyr Cys Asn Asp Gly Phe  
 35 40 45  
 tgc gaa ctc ttc ggc tac tcc cga gtg gag gtg atg cag caa ccc tgc 192  
 Cys Glu Leu Phe Gly Tyr Ser Arg Val Glu Val Met Gln Gln Pro Cys  
 50 55 60  
 acc tgc gac ttc ctc aca ggc ccc aac aca cca agc agc gcc gtg tcc 240  
 Thr Cys Asp Phe Leu Thr Gly Pro Asn Thr Pro Ser Ser Ala Val Ser  
 65 70 75 80  
 cgc cta gcg cag gcc ctg ctg ggg gct gag gag tgc aag gtg gac atc 288  
 Arg Leu Ala Gln Ala Leu Leu Gly Ala Glu Glu Cys Lys Val Asp Ile  
 85 90 95  
 ctc tac tac cgc aag gat gcc tcc agc ttc cgc tgc ctg gta gat gtg 336  
 Leu Tyr Tyr Arg Lys Asp Ala Ser Ser Phe Arg Cys Leu Val Asp Val  
 100 105 110  
 gtg ccc gtg aag aac gag gac ggg gct gtc atc atg ttc att ctc aac 384  
 Val Pro Val Lys Asn Glu Asp Gly Ala Val Ile Met Phe Ile Leu Asn  
 115 120 125  
 ttc gag gac ctg gcc cag ctc ctg gcc aag tgc agc agc cgc agc ttg 432  
 Phe Glu Asp Leu Ala Gln Leu Leu Ala Lys Cys Ser Ser Arg Ser Leu  
 130 135 140  
 tcc cag cgc ctg ttg tcc cag agc ttc ctg ggc tcc gag ggc tct cat 480  
 Ser Gln Arg Leu Leu Ser Gln Ser Phe Leu Gly Ser Glu Gly Ser His  
 145 150 155 160  
 ggc agg cca ggc gga cca ggg cca ggc aca ggc agg ggc aag tac agg 528  
 Gly Arg Pro Gly Gly Pro Gly Pro Gly Thr Gly Arg Gly Lys Tyr Arg  
 165 170 175  
 acc atc agc cag atc cca cag ttc acg ctc aac ttc gtg gag ttc aac 576  
 Thr Ile Ser Gln Ile Pro Gln Phe Thr Leu Asn Phe Val Glu Phe Asn  
 180 185 190

ttg gag aag cac cgc tcc agc tcc acc acg gag att gag atc atc gcg Leu Glu Lys His Arg Ser Ser Thr Thr Glu Ile Glu Ile Ile Ala 195 200 205	624
ccc cat aag gtg gtg gag cgg aca cag aac gtc act gag aag gtc acc Pro His Lys Val Val Glu Arg Thr Gln Asn Val Thr Glu Lys Val Thr 210 215 220	672
cag gtc ctg tcc ctg ggc gcg gat gtg ctg ccg gag tac aag ctg cag Gln Val Leu Ser Leu Gly Ala Asp Val Leu Pro Glu Tyr Lys Leu Gln 225 230 235 240	720
gcg ccg cgc atc cac cgc tgg acc atc ctg cac tac agc ccc ttc aag Ala Pro Arg Ile His Arg Trp Thr Ile Leu His Tyr Ser Pro Phe Lys 245 250 255	768
gcc gtg tgg gac tgg ctc atc ctg ctg ctg gtc atc tac acg gct gtc Ala Val Trp Asp Trp Leu Ile Leu Leu Leu Val Ile Tyr Thr Ala Val 260 265 270	816
ttc acg ccc tac tca gcc gcc ttc ctg ctc agc gac cag gac gaa tca Phe Thr Pro Tyr Ser Ala Ala Phe Leu Leu Ser Asp Gln Asp Glu Ser 275 280 285	864
cgg cgt ggg gcc tgc agc tat acc tgc agt ccc ctc act gtg gtg gat Arg Arg Gly Ala Cys Ser Tyr Thr Cys Ser Pro Leu Thr Val Val Asp 290 295 300	912
ctc atc gtg gac atc atg ttc gtc gtg gac atc gtc atc aac ttc cgc Leu Ile Val Asp Ile Met Phe Val Val Asp Ile Val Ile Asn Phe Arg 305 310 315 320	960
acc acc tat gtc aac acc aat gat gag gtg gtc agc cac ccc cgc cgc Thr Thr Tyr Val Asn Thr Asn Asp Glu Val Val Ser His Pro Arg Arg 325 330 335	1008
atc gcc gtc cac tac ttc aag ggc tgg ttc ctc att gac atg gtg gcc Ile Ala Val His Tyr Phe Lys Gly Trp Phe Leu Ile Asp Met Val Ala 340 345 350	1056
gcc atc cct ttc gac ctc ctg atc ttc cgc act ggc tcc gat gag acc Ala Ile Pro Phe Asp Leu Leu Ile Phe Arg Thr Gly Ser Asp Glu Thr 355 360 365	1104
aca acc ctg att ggg cta ttg aag aca gcg cgg ctg ctg cgg ctg gtg Thr Thr Leu Ile Gly Leu Leu Lys Thr Ala Arg Leu Leu Arg Leu Val 370 375 380	1152
cgc gta gca cgg aag ctg gac cgc tac tct gag tat ggg gcg gct gtg Arg Val Ala Arg Lys Leu Asp Arg Tyr Ser Glu Tyr Gly Ala Ala Val 385 390 395 400	1200
ctc ttc ttg ctc atg tgc acc ttc gcg ctc ata gcg cac tgg ctg gcc Leu Phe Leu Leu Met Cys Thr Phe Ala Leu Ile Ala His Trp Leu Ala 405 410 415	1248
tgc atc tgg tac gcc atc ggc aat gtg gag cgg ccc tac cta gaa cac Cys Ile Trp Tyr Ala Ile Gly Asn Val Glu Arg Pro Tyr Leu Glu His 420 425 430	1296
aag atc ggc tgg ctg gac agc ctg ggt gtg cag ctt ggc aag cgc tac	1344

Lys	Ile	Gly	Trp	Leu	Asp	Ser	Leu	Gly	Val	Gln	Leu	Gly	Lys	Arg	Tyr		
		435					440					445					
aac	ggc	agc	gac	cca	gcc	tcg	ggc	ccc	tcg	gtg	cag	gac	aag	tat	gtc	1392	
Asn	Gly	Ser	Asp	Pro	Ala	Ser	Gly	Pro	Ser	Val	Gln	Asp	Lys	Tyr	Val		
	450					455					460						
aca	gcc	ctc	tac	ttc	acc	ttc	agc	agc	ctc	acc	agc	gtg	ggc	ttc	ggc	1440	
Thr	Ala	Leu	Tyr	Phe	Thr	Phe	Ser	Ser	Leu	Thr	Ser	Val	Gly	Phe	Gly		
465					470					475					480		
aat	gtc	tcg	ccc	aac	acc	aac	tcc	gag	aag	gtc	ttc	tcc	atc	tgc	gtc	1488	
Asn	Val	Ser	Pro	Asn	Thr	Asn	Ser	Glu	Lys	Val	Phe	Ser	Ile	Cys	Val		
				485					490					495			
atg	ctc	atc	ggc	tcc	ctg	atg	tac	gcc	agc	atc	ttc	ggg	aac	gtg	tcc	1536	
Met	Leu	Ile	Gly	Ser	Leu	Met	Tyr	Ala	Ser	Ile	Phe	Gly	Asn	Val	Ser		
			500					505					510				
gcg	atc	atc	cag	cgc	ctg	tac	tcg	ggc	acc	gcg	cgc	tac	cac	acg	cag	1584	
Ala	Ile	Ile	Gln	Arg	Leu	Tyr	Ser	Gly	Thr	Ala	Arg	Tyr	His	Thr	Gln		
		515					520					525					
atg	ctg	cgt	gtc	aag	gag	ttc	atc	cgc	ttc	cac	cag	atc	ccc	aac	cca	1632	
Met	Leu	Arg	Val	Lys	Glu	Phe	Ile	Arg	Phe	His	Gln	Ile	Pro	Asn	Pro		
	530					535					540						
ctg	cgc	cag	cgc	ctg	gag	gag	tat	ttc	cag	cac	gcc	tgg	tcc	tac	acc	1680	
Leu	Arg	Gln	Arg	Leu	Glu	Glu	Tyr	Phe	Gln	His	Ala	Trp	Ser	Tyr	Thr		
545					550				555						560		
aat	ggc	att	gac	atg	aac	gcg	gtg	ctg	aag	ggc	ttc	ccc	gag	tgc	ctg	1728	
Asn	Gly	Ile	Asp	Met	Asn	Ala	Val	Leu	Lys	Gly	Phe	Pro	Glu	Cys	Leu		
				565					570					575			
cag	gct	gac	atc	tgc	ctg	cac	ctg	cac	cgc	gca	ctg	ctg	cag	cac	tgc	1776	
Gln	Ala	Asp	Ile	Cys	Leu	His	Leu	His	Arg	Ala	Leu	Leu	Gln	His	Cys		
			580					585					590				
cca	gct	ttc	agc	ggc	gcc	ggc	aag	ggc	tgc	ctg	cgc	gcg	cta	gcc	gtc	1824	
Pro	Ala	Phe	Ser	Gly	Ala	Gly	Lys	Gly	Cys	Leu	Arg	Ala	Leu	Ala	Val		
		595					600					605					
aag	ttc	aag	acc	acc	cac	gcg	ccg	cct	ggg	gac	acg	ctg	gtg	cac	ctc	1872	
Lys	Phe	Lys	Thr	Thr	His	Ala	Pro	Pro	Gly	Asp	Thr	Leu	Val	His	Leu		
	610					615						620					
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Gly	Asp	Val	Leu	Ser	Thr	Leu	Tyr	Phe	Ile	Ser	Arg	Gly	Ser	Ile	Glu		
625					630					635					640		
atc	ctg	cgc	gac	gac	gtg	gtc	gtg	gcc	atc	cta	gga	aag	aat	gac	atc	1968	
Ile	Leu	Arg	Asp	Asp	Val	Val	Val	Ala	Ile	Leu	Gly	Lys	Asn	Asp	Ile		
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ttt	ggg	gaa	ccc	gtc	agc	ctc	cat	gcc	cag	cca	ggc	aag	tcc	agt	gca	2016	
Phe	Gly	Glu	Pro	Val	Ser	Leu	His	Ala	Gln	Pro	Gly	Lys	Ser	Ser	Ala		
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gac	gtg	cgg	gct	ctg	acc	tac	tgc	gac	ctg	cac	aag	atc	cag	cgg	gca	2064	
Asp	Val	Arg	Ala	Leu	Thr	Tyr	Cys	Asp	Leu	His	Lys	Ile	Gln	Arg	Ala		

675					680					685						
gat	ctg	ctg	gag	gtg	ctg	gac	atg	tac	ccg	gcc	ttt	gcg	gag	agc	ttc	2112
Asp	Leu	Leu	Glu	Val	Leu	Asp	Met	Tyr	Pro	Ala	Phe	Ala	Glu	Ser	Phe	
	690					695					700					
tgg	agt	aag	ctg	gag	gtc	acc	ttc	aac	ctg	cgg	gac	gca	gcc	ggg	ggt	2160
Trp	Ser	Lys	Leu	Glu	Val	Thr	Phe	Asn	Leu	Arg	Asp	Ala	Ala	Gly	Gly	
	705				710					715					720	
ctc	cac	tca	tcc	ccc	cga	cag	gct	cct	ggc	agc	caa	gac	cac	caa	ggt	2208
Leu	His	Ser	Ser	Pro	Arg	Gln	Ala	Pro	Gly	Ser	Gln	Asp	His	Gln	Gly	
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Phe	Phe	Leu	Ser	Asp	Asn	Gln	Ser	Asp	Ala	Ala	Pro	Pro	Leu	Ser	Ile	
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Ser	Asp	Ala	Ser	Gly	Leu	Trp	Pro	Glu	Leu	Leu	Gln	Glu	Met	Pro	Pro	
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Arg	His	Ser	Pro	Gln	Ser	Pro	Gln	Glu	Asp	Pro	Asp	Cys	Trp	Pro	Leu	
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Lys	Leu	Gly	Ser	Arg	Leu	Glu	Gln	Leu	Gln	Ala	Gln	Met	Asn	Arg	Leu	
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Glu	Ser	Arg	Val	Ser	Ser	Asp	Leu	Ser	Arg	Ile	Leu	Gln	Leu	Leu	Gln	
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aag	ccc	atg	ccc	cag	ggc	cac	gcc	agc	tac	att	ctg	gaa	gcc	cct	gcc	2496
Lys	Pro	Met	Pro	Gln	Gly	His	Ala	Ser	Tyr	Ile	Leu	Glu	Ala	Pro	Ala	
			820					825					830			
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Ser	Asn	Asp	Leu	Ala	Leu	Val	Pro	Ile	Ala	Ser	Glu	Thr	Thr	Ser	Pro	
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Gly	Pro	Arg	Leu	Pro	Gln	Gly	Phe	Leu	Pro	Pro	Ala	Gln	Thr	Pro	Ser	
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tat	gga	gac	ttg	gat	gac	tgt	agt	cca	aag	cac	agg	aac	tcc	tcc	ccc	2640
Tyr	Gly	Asp	Leu	Asp	Asp	Cys	Ser	Pro	Lys	His	Arg	Asn	Ser	Ser	Pro	
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agg	atg	cct	cac	ctg	gct	gtg	gca	acg	gac	aaa	act	ctg	gca	cca	tcc	2688
Arg	Met	Pro	His	Leu	Ala	Val	Ala	Thr	Asp	Lys	Thr	Leu	Ala	Pro	Ser	
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tca	gaa	cag	gaa	cag	cct	gag	ggg	ctc	tgg	cca	ccc	cta	gcc	tca	cct	2736
Ser	Glu	Gln	Gln	Gln	Pro	Glu	Gly	Leu	Trp	Pro	Pro	Leu	Ala	Ser	Pro	
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Leu	His	Pro	Leu	Glu	Val	Gln	Gly	Leu	Ile	Cys	Gly	Pro	Cys	Phe	Ser	
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tcc ctc cct gaa cac ctt ggc tct gtt ccc aag cag ctg gac ttc cag 2832  
 Ser Leu Pro Glu His Leu Gly Ser Val Pro Lys Gln Leu Asp Phe Gln  
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aga cat ggc tca gat cct gga ttt gca ggg agt tgg ggc cac tga 2877  
 Arg His Gly Ser Asp Pro Gly Phe Ala Gly Ser Trp Gly His \*  
 945 950 955

actccaagat aaagacacca tgaggggact gaaggtgggc aaggggattt ccttttagctg 2937  
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 Thr Cys Asp Phe Leu Thr Gly Pro Asn Thr Pro Ser Ser Ala Val Ser  
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 Gly Arg Pro Gly Gly Pro Gly Pro Gly Thr Gly Arg Gly Lys Tyr Arg  
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 Thr Ile Ser Gln Ile Pro Gln Phe Thr Leu Asn Phe Val Glu Glu Phe Asn  
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 Leu Glu Lys His Arg Ser Ser Ser Thr Thr Glu Ile Glu Ile Ile Ala  
 195 200 205  
 Pro His Lys Val Val Glu Arg Thr Gln Asn Val Thr Glu Lys Val Thr  
 210 215 220  
 Gln Val Leu Ser Leu Gly Ala Asp Val Leu Pro Glu Tyr Lys Leu Gln  
 225 230 235 240  
 Ala Pro Arg Ile His Arg Trp Thr Ile Leu His Tyr Ser Pro Phe Lys  
 245 250 255  
 Ala Val Trp Asp Trp Leu Ile Leu Leu Leu Val Ile Tyr Thr Ala Val  
 260 265 270  
 Phe Thr Pro Tyr Ser Ala Ala Phe Leu Leu Ser Asp Gln Asp Glu Ser  
 275 280 285  
 Arg Arg Gly Ala Cys Ser Tyr Thr Cys Ser Pro Leu Thr Val Val Asp  
 290 295 300  
 Leu Ile Val Asp Ile Met Phe Val Val Asp Ile Val Ile Asn Phe Arg  
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Ile	Ala	Val	His	Tyr	Phe	Lys	Gly	Trp	Phe	Leu	Ile	Asp	Met	Val	Ala
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Ala	Ile	Pro	Phe	Asp	Leu	Leu	Ile	Phe	Arg	Thr	Gly	Ser	Asp	Glu	Thr
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Thr	Thr	Leu	Ile	Gly	Leu	Leu	Lys	Thr	Ala	Arg	Leu	Leu	Arg	Leu	Val
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Arg	Val	Ala	Arg	Lys	Leu	Asp	Arg	Tyr	Ser	Glu	Tyr	Gly	Ala	Ala	Val
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Leu	Phe	Leu	Leu	Met	Cys	Thr	Phe	Ala	Leu	Ile	Ala	His	Trp	Leu	Ala
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Cys	Ile	Trp	Tyr	Ala	Ile	Gly	Asn	Val	Glu	Arg	Pro	Tyr	Leu	Glu	His
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Lys	Ile	Gly	Trp	Leu	Asp	Ser	Leu	Gly	Val	Gln	Leu	Gly	Lys	Arg	Tyr
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Thr	Ala	Leu	Tyr	Phe	Thr	Phe	Ser	Ser	Leu	Thr	Ser	Val	Gly	Phe	Gly
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Met	Leu	Ile	Gly	Ser	Leu	Met	Tyr	Ala	Ser	Ile	Phe	Gly	Asn	Val	Ser
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Ala	Ile	Ile	Gln	Arg	Leu	Tyr	Ser	Gly	Thr	Ala	Arg	Tyr	His	Thr	Gln
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Asn	Gly	Ile	Asp	Met	Asn	Ala	Val	Leu	Lys	Gly	Phe	Pro	Glu	Cys	Leu
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Gln	Ala	Asp	Ile	Cys	Leu	His	Leu	His	Arg	Ala	Leu	Leu	Gln	His	Cys
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Ile	Leu	Arg	Asp	Asp	Val	Val	Val	Ala	Ile	Leu	Gly	Lys	Asn	Asp	Ile
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Leu	His	Ser	Ser	Pro	Arg	Gln	Ala	Pro	Gly	Ser	Gln	Asp	His	Gln	Gly
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Phe	Phe	Leu	Ser	Asp	Asn	Gln	Ser	Asp	Ala	Ala	Pro	Pro	Leu	Ser	Ile
			740					745					750		
Ser	Asp	Ala	Ser	Gly	Leu	Trp	Pro	Glu	Leu	Leu	Gln	Glu	Met	Pro	Pro
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Arg	His	Ser	Pro	Gln	Ser	Pro	Gln	Glu	Asp	Pro	Asp	Cys	Trp	Pro	Leu
	770					775					780				
Lys	Leu	Gly	Ser	Arg	Leu	Glu	Gln	Leu	Gln	Ala	Gln	Met	Asn	Arg	Leu

785					790					795					800
Glu	Ser	Arg	Val	Ser	Ser	Asp	Leu	Ser	Arg	Ile	Leu	Gln	Leu	Leu	Gln
				805					810					815	
Lys	Pro	Met	Pro	Gln	Gly	His	Ala	Ser	Tyr	Ile	Leu	Glu	Ala	Pro	Ala
			820					825					830		
Ser	Asn	Asp	Leu	Ala	Leu	Val	Pro	Ile	Ala	Ser	Glu	Thr	Thr	Ser	Pro
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Gly	Pro	Arg	Leu	Pro	Gln	Gly	Phe	Leu	Pro	Pro	Ala	Gln	Thr	Pro	Ser
	850				855					860					
Tyr	Gly	Asp	Leu	Asp	Asp	Cys	Ser	Pro	Lys	His	Arg	Asn	Ser	Ser	Pro
865				870					875					880	
Arg	Met	Pro	His	Leu	Ala	Val	Ala	Thr	Asp	Lys	Thr	Leu	Ala	Pro	Ser
			885					890						895	
Ser	Glu	Gln	Glu	Gln	Pro	Glu	Gly	Leu	Trp	Pro	Pro	Leu	Ala	Ser	Pro
		900					905					910			
Leu	His	Pro	Leu	Glu	Val	Gln	Gly	Leu	Ile	Cys	Gly	Pro	Cys	Phe	Ser
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Ser	Leu	Pro	Glu	His	Leu	Gly	Ser	Val	Pro	Lys	Gln	Leu	Asp	Phe	Gln
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 Met Glu Ala Phe Leu Cys Glu Val  
 1 5

aca tca gct gtg cag gcc cca ctg gct gtg cgt gcc ctc tac aca cct 162  
 Thr Ser Ala Val Gln Ala Pro Leu Ala Val Arg Ala Leu Tyr Thr Pro  
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tgt cat ggc cac cct gtc acc aac ctg gca gac ttg aag aac aga ggg 210  
 Cys His Gly His Pro Val Thr Asn Leu Ala Asp Leu Lys Asn Arg Gly  
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cag tat gtg gcc gct gga ttt gaa cga ttc cac aag ctc ccc cct tac 258  
 Gln Tyr Val Ala Ala Gly Phe Glu Arg Phe His Lys Leu Pro Pro Tyr  
 45 50 55

cag gct ttt tgt ctc agt gtg ttc agg aat ggg gac ctg gta agt ccc 306  
 Gln Ala Phe Cys Leu Ser Val Phe Arg Asn Gly Asp Leu Val Ser Pro  
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cca ttt agt ctg aag ctg tcc cag gct gcc agc cag gac tgg gaa act 354  
 Pro Phe Ser Leu Lys Leu Ser Gln Ala Ala Ser Gln Asp Trp Glu Thr  
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gtg ttg aag ctc ctg act gag aag gtc aag ttg cag agt ggg gct gtg 402  
 Val Leu Lys Leu Leu Thr Glu Lys Val Lys Leu Gln Ser Gly Ala Val  
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aga ctc tgc acc cta gag ggg ctc cca ctg tca gca ggg aag gag ctg	450
Arg Leu Cys Thr Leu Glu Gly Leu Pro Leu Ser Ala Gly Lys Glu Leu	
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Val Thr Gly His Tyr Tyr Val Ala Val Gly Glu Asp Glu Phe Lys Asp	
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ctt ccc tat cca gct ctg tcc aca aga ggg ctc ctg gca gca ggc aat	546
Leu Pro Tyr Pro Ala Leu Ser Thr Arg Gly Leu Leu Ala Ala Gly Asn	
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Glu Ala His Leu Arg Ser Gly Val Gly Thr Val Ala Gly Ser Pro Lys	
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cct ctt gga agg aag gct aag aag gag aca tgc cta atc gtg acc ctg	642
Pro Leu Gly Arg Lys Ala Lys Lys Glu Thr Cys Leu Ile Val Thr Leu	
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acc ctg aaa tac cag cag tca gaa aca agc aga gac ggg caa tca ttc	690
Thr Leu Lys Tyr Gln Gln Ser Glu Thr Ser Arg Asp Gly Gln Ser Phe	
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cca tca gga gtt ata gga gta tat gga gct ccc cac cga agg aag gag	738
Pro Ser Gly Val Ile Gly Val Tyr Gly Ala Pro His Arg Arg Lys Glu	
205 210 215	
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Thr Ala Gly Ala Leu Glu Val Ala Asp Asp Glu Asp Thr Gln Thr Glu	
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Glu Pro Leu Asp Gln Arg Ala Ala Gln Ile Val Glu Gln Val Thr Cys	
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Glu Lys Phe Arg Tyr Ala Gln Asp Asp Phe Val Leu Asp His Ser Arg	
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cga cgg ctc ctg aga gag cac cag gcg ggc ttt gag aag ctc cgc agg	978
Arg Arg Leu Leu Arg Glu His Gln Ala Gly Phe Glu Lys Leu Arg Arg	
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acc cga gga gaa gag aag gag gca gag aag gag aaa aag cca tgt atg	1026
Thr Arg Gly Glu Glu Lys Glu Ala Glu Lys Glu Lys Lys Pro Cys Met	
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tct gga ggc aga agg atg act ctc aga gat gac caa cct gca aag cta	1074
Ser Gly Gly Arg Arg Met Thr Leu Arg Asp Asp Gln Pro Ala Lys Leu	
315 320 325	
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Glu Lys Glu Pro Lys Thr Arg Pro Glu Glu Asn Lys Pro Glu Arg Pro	
330 335 340	

agc ggt cgg aag cca cgg ccc atg ggc atc att gcc gcc aat gtg gaa	1170
Ser Gly Arg Lys Pro Arg Pro Met Gly Ile Ile Ala Ala Asn Val Glu	
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Lys His Tyr Glu Thr Gly Arg Val Ile Gly Asp Gly Asn Phe Ala Val	
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Val Lys Glu Cys Arg His Arg Glu Thr Arg Gln Ala Tyr Ala Met Lys	
380 385 390	
atc att gac aag tcc aga ctc aag ggc aag gag gac atg gtg gac agt	1314
Ile Ile Asp Lys Ser Arg Leu Lys Gly Lys Glu Asp Met Val Asp Ser	
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Glu Ile Leu Ile Ile Gln Ser Leu Ser His Pro Asn Ile Val Lys Leu	
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His Glu Val Tyr Glu Thr Asp Met Glu Ile Tyr Leu Ile Leu Glu Tyr	
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Val Gln Gly Gly Asp Leu Phe Asp Ala Ile Ile Glu Ser Val Lys Phe	
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Pro Glu Pro Asp Ala Ala Leu Met Ile Met Asp Leu Cys Lys Ala Leu	
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Val His Met His Asp Lys Ser Ile Val His Arg Asp Leu Lys Pro Glu	
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Asn Leu Leu Val Gln Arg Asn Glu Asp Lys Ser Thr Thr Leu Lys Leu	
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Ala Asp Phe Gly Leu Ala Lys His Val Val Arg Pro Ile Phe Thr Val	
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Cys Gly Thr Pro Thr Tyr Val Ala Pro Glu Ile Leu Ser Glu Lys Gly	
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Tyr Gly Leu Glu Val Asp Met Trp Ala Ala Gly Val Ile Leu Tyr Ile	
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Leu Leu Cys Gly Phe Pro Pro Phe Arg Ser Pro Glu Arg Asp Gln Asp	
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Glu Leu Phe Asn Ile Ile Gln Leu Gly His Phe Glu Phe Leu Pro Pro	
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Tyr Trp Asp Asn Ile Ser Asp Ala Ala Lys Asp Leu Val Ser Arg Leu
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Leu Val Val Asp Pro Lys Lys Arg Tyr Thr Ala His Gln Val Leu Gln
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cac ccc tgg atc gaa aca gct ggc aag acc aat aca gtg aaa cga cag    1986
His Pro Trp Ile Glu Thr Ala Gly Lys Thr Asn Thr Val Lys Arg Gln
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aag cag gtg tcc ccc agc agc gat ggt cac ttc cgg agc cag cac aag    2034
Lys Gln Val Ser Pro Ser Ser Asp Gly His Phe Arg Ser Gln His Lys
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agg gtt gtg gag cag gta tca tag tcaccacctt gggaatctgt ccagccccc    2088
Arg Val Val Glu Gln Val Ser *
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35                      40                      45
Arg Phe His Lys Leu Pro Pro Tyr Gln Ala Phe Cys Leu Ser Val Phe
50                      55                      60
Arg Asn Gly Asp Leu Val Ser Pro Pro Phe Ser Leu Lys Leu Ser Gln
65                      70                      75                      80
Ala Ala Ser Gln Asp Trp Glu Thr Val Leu Lys Leu Leu Thr Glu Lys
85                      90                      95
Val Lys Leu Gln Ser Gly Ala Val Arg Leu Cys Thr Leu Glu Gly Leu
100                      105                      110
Pro Leu Ser Ala Gly Lys Glu Leu Val Thr Gly His Tyr Tyr Val Ala
115                      120                      125
Val Gly Glu Asp Glu Phe Lys Asp Leu Pro Tyr Pro Ala Leu Ser Thr
130                      135                      140
Arg Gly Leu Leu Ala Ala Gly Asn Glu Ala His Leu Arg Ser Gly Val
145                      150                      155                      160
Gly Thr Val Ala Gly Ser Pro Lys Pro Leu Gly Arg Lys Ala Lys Lys
165                      170                      175
Glu Thr Cys Leu Ile Val Thr Leu Thr Leu Lys Tyr Gln Gln Ser Glu
180                      185                      190
Thr Ser Arg Asp Gly Gln Ser Phe Pro Ser Gly Val Ile Gly Val Tyr
195                      200                      205
Gly Ala Pro His Arg Arg Lys Glu Thr Ala Gly Ala Leu Glu Val Ala
210                      215                      220
Asp Asp Glu Asp Thr Gln Thr Glu Glu Pro Leu Asp Gln Arg Ala Ala

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225					230					235					240
Gln	Ile	Val	Glu	Gln	Val	Thr	Cys	Leu	Gln	Asp	Phe	Phe	Gly	Asp	Asp
				245					250					255	
Asp	Val	Phe	Ile	Ala	Cys	Gly	Pro	Glu	Lys	Phe	Arg	Tyr	Ala	Gln	Asp
			260					265					270		
Asp	Phe	Val	Leu	Asp	His	Ser	Arg	Arg	Arg	Leu	Leu	Arg	Glu	His	Gln
		275					280					285			
Ala	Gly	Phe	Glu	Lys	Leu	Arg	Arg	Thr	Arg	Gly	Glu	Glu	Lys	Glu	Ala
	290					295					300				
Glu	Lys	Glu	Lys	Lys	Pro	Cys	Met	Ser	Gly	Gly	Arg	Arg	Met	Thr	Leu
305					310				315					320	
Arg	Asp	Asp	Gln	Pro	Ala	Lys	Leu	Glu	Lys	Glu	Pro	Lys	Thr	Arg	Pro
				325				330					335		
Glu	Glu	Asn	Lys	Pro	Glu	Arg	Pro	Ser	Gly	Arg	Lys	Pro	Arg	Pro	Met
			340					345					350		
Gly	Ile	Ile	Ala	Ala	Asn	Val	Glu	Lys	His	Tyr	Glu	Thr	Gly	Arg	Val
		355					360					365			
Ile	Gly	Asp	Gly	Asn	Phe	Ala	Val	Val	Lys	Glu	Cys	Arg	His	Arg	Glu
	370				375						380				
Thr	Arg	Gln	Ala	Tyr	Ala	Met	Lys	Ile	Ile	Asp	Lys	Ser	Arg	Leu	Lys
385					390					395				400	
Gly	Lys	Glu	Asp	Met	Val	Asp	Ser	Glu	Ile	Leu	Ile	Ile	Gln	Ser	Leu
				405				410					415		
Ser	His	Pro	Asn	Ile	Val	Lys	Leu	His	Glu	Val	Tyr	Glu	Thr	Asp	Met
			420				425					430			
Glu	Ile	Tyr	Leu	Ile	Leu	Glu	Tyr	Val	Gln	Gly	Gly	Asp	Leu	Phe	Asp
	435					440					445				
Ala	Ile	Ile	Glu	Ser	Val	Lys	Phe	Pro	Glu	Pro	Asp	Ala	Ala	Leu	Met
	450					455				460					
Ile	Met	Asp	Leu	Cys	Lys	Ala	Leu	Val	His	Met	His	Asp	Lys	Ser	Ile
465					470					475				480	
Val	His	Arg	Asp	Leu	Lys	Pro	Glu	Asn	Leu	Leu	Val	Gln	Arg	Asn	Glu
				485				490						495	
Asp	Lys	Ser	Thr	Thr	Leu	Lys	Leu	Ala	Asp	Phe	Gly	Leu	Ala	Lys	His
			500					505					510		
Val	Val	Arg	Pro	Ile	Phe	Thr	Val	Cys	Gly	Thr	Pro	Thr	Tyr	Val	Ala
			515				520					525			
Pro	Glu	Ile	Leu	Ser	Glu	Lys	Gly	Tyr	Gly	Leu	Glu	Val	Asp	Met	Trp
	530					535					540				
Ala	Ala	Gly	Val	Ile	Leu	Tyr	Ile	Leu	Leu	Cys	Gly	Phe	Pro	Pro	Phe
545					550				555					560	
Arg	Ser	Pro	Glu	Arg	Asp	Gln	Asp	Glu	Leu	Phe	Asn	Ile	Ile	Gln	Leu
				565				570						575	
Gly	His	Phe	Glu	Phe	Leu	Pro	Pro	Tyr	Trp	Asp	Asn	Ile	Ser	Asp	Ala
			580					585				590			
Ala	Lys	Asp	Leu	Val	Ser	Arg	Leu	Leu	Val	Val	Asp	Pro	Lys	Lys	Arg
		595					600				605				
Tyr	Thr	Ala	His	Gln	Val	Leu	Gln	His	Pro	Trp	Ile	Glu	Thr	Ala	Gly
	610					615					620				
Lys	Thr	Asn	Thr	Val	Lys	Arg	Gln	Lys	Gln	Val	Ser	Pro	Ser	Ser	Asp
625					630					635				640	
Gly	His	Phe	Arg	Ser	Gln	His	Lys	Arg	Val	Val	Glu	Gln	Val	Ser	
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 <212> DNA  
 <213> Homo sapiens

<220>

<221> CDS

<222> (58)...(1290)

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Glu Thr Ser Ser Pro Arg Pro Pro Arg Pro Ser Ser Asn Pro Gly Leu  
5 10 15

agc ctg gac gcc cgg ctg ggc gtg gac act cgc ctc tgg gcc aag gtg 156  
Ser Leu Asp Ala Arg Leu Gly Val Asp Thr Arg Leu Trp Ala Lys Val  
20 25 30

ctg ttc acc gcg ctc tac gca ctc atc tgg gcg ctg ggc gcg gcg ggc 204  
Leu Phe Thr Ala Leu Tyr Ala Leu Ile Trp Ala Leu Gly Ala Ala Gly  
35 40 45

aat gcg ctg tcc gtg cac gtg gtg ctg aag gcg cgg gcc ggg cgc gcg 252  
Asn Ala Leu Ser Val His Val Val Leu Lys Ala Arg Ala Gly Arg Ala  
50 55 60 65

ggg cgc ctg cgc cac cac gtg ctc agc ctg gcg ctc gcg ggc ctg ctg 300  
Gly Arg Leu Arg His His Val Leu Ser Leu Ala Leu Ala Gly Leu Leu  
70 75 80

ctg ctg ctg gtc ggc gtg ccg gtg gag ctc tac agc ttc gtg tgg ttc 348  
Leu Leu Leu Val Gly Val Pro Val Glu Leu Tyr Ser Phe Val Trp Phe  
85 90 95

cac tac ccc tgg gtc ttc ggc gac ctg ggc tgc cgc ggc tac tac ttc 396  
His Tyr Pro Trp Val Phe Gly Asp Leu Gly Cys Arg Gly Tyr Tyr Phe  
100 105 110

gtg cac gag ctg tgc gcc tac gcc acg gtg ctg agc gtg gca ggc ctg 444  
Val His Glu Leu Cys Ala Tyr Ala Thr Val Leu Ser Val Ala Gly Leu  
115 120 125

agc gcc gag gcg tgc cta gcc gtg tgc cag ccc ctg cgt gcc cgc agc 492  
Ser Ala Glu Arg Cys Leu Ala Val Cys Gln Pro Leu Arg Ala Arg Ser  
130 135 140 145

ctg ctg acg cca cgc cgg acc cgg tgg ctg gtg gcg ctc tgc tgg gcc 540  
Leu Leu Thr Pro Arg Arg Thr Arg Trp Leu Val Ala Leu Ser Trp Ala  
150 155 160

gcc tgc ctc ggc ctc gcc ctg ccc atg gcc gtc atc atg ggg cag aag 588  
Ala Ser Leu Gly Leu Ala Leu Pro Met Ala Val Ile Met Gly Gln Lys  
165 170 175

cac gaa ctc gag acg gcg gac ggg gag ccg gag ccc gcc tgc cga gtg 636  
His Glu Leu Glu Thr Ala Asp Gly Glu Pro Glu Pro Ala Ser Arg Val  
180 185 190

tgc acg gtg ctg gtg agc cgc acc gcg ctc caa gtc ttt atc cag gtg 684  
Cys Thr Val Leu Val Ser Arg Thr Ala Leu Gln Val Phe Ile Gln Val  
195 200 205

aat gtg ctg gtg tcc ttc gtg ctc ccc ttg gca cta act gct ttc ctg 732



Asn Val Leu Val Ser Phe Val Leu Pro Leu Ala Leu Thr Ala Phe Leu	
210 215 220 225	
aat ggg gtc aca gtg agc cac ctg ctg gcc ctc tgc tcc caa gtg ccg	780
Asn Gly Val Thr Val Ser His Leu Leu Ala Leu Cys Ser Gln Val Pro	
230 235 240	
tcc act tct acc ccg ggc agc tcc acc ccc agc cgc ctg gag ctg ctg	828
Ser Thr Ser Thr Pro Gly Ser Ser Thr Pro Ser Arg Leu Glu Leu Leu	
245 250 255	
agt gag gag ggt ctc ctc agc ttc atc gta tgg aag aag acc ttt atc	876
Ser Glu Glu Gly Leu Leu Ser Phe Ile Val Trp Lys Lys Thr Phe Ile	
260 265 270	
cag gga ggc cag gtc agc ctg gtg aga cat aaa gac gtg cgc cgg atc	924
Gln Gly Gly Gln Val Ser Leu Val Arg His Lys Asp Val Arg Arg Ile	
275 280 285	
cgc agc ctc cag cgc agc gtc cag gtt ctc aga gcc atc gtg gtc atg	972
Arg Ser Leu Gln Arg Ser Val Gln Val Leu Arg Ala Ile Val Val Met	
290 295 300 305	
tat gtc atc tgc tgg ctg ccg tac cat gcc cgc agg ctc atg tac tgc	1020
Tyr Val Ile Cys Trp Leu Pro Tyr His Ala Arg Arg Leu Met Tyr Cys	
310 315 320	
tac gta cct gat gac gcg tgg act gac cca ctg tac aat ttc tac cac	1068
Tyr Val Pro Asp Asp Ala Trp Thr Asp Pro Leu Tyr Asn Phe Tyr His	
325 330 335	
tac ttc tac atg gtg acc aac aca ctt ttc tac gtc agc tca gct gtg	1116
Tyr Phe Tyr Met Val Thr Asn Thr Leu Phe Tyr Val Ser Ser Ala Val	
340 345 350	
act cct ctt ctc tac aac gcc gtg tcc tcc tcc ttc aga aaa ctc ttc	1164
Thr Pro Leu Leu Tyr Asn Ala Val Ser Ser Ser Phe Arg Lys Leu Phe	
355 360 365	
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Leu Glu Ala Val Ser Ser Leu Cys Gly Glu His His Pro Met Lys Arg	
370 375 380 385	
tta ccc ccg aag ccc cag agt ccc acc cta atg gat aca gct tca ggc	1260
Leu Pro Pro Lys Pro Gln Ser Pro Thr Leu Met Asp Thr Ala Ser Gly	
390 395 400	
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Phe Gly Asp Pro Pro Glu Thr Arg Thr *	
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taatcattca agcttcgcag ccagggcgac ttctatcaac cccagctctg ctgagaacca	1430
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 <212> PRT  
 <213> Homo sapiens

<400> 62

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Val Leu Phe Thr Ala Leu Tyr Ala Leu Ile Trp Ala Leu Gly Ala Ala
35     40     45
Gly Asn Ala Leu Ser Val His Val Val Leu Lys Ala Arg Ala Gly Arg
50     55     60
Ala Gly Arg Leu Arg His His Val Leu Ser Leu Ala Leu Ala Gly Leu
65     70     75     80
Leu Leu Leu Leu Val Gly Val Pro Val Glu Leu Tyr Ser Phe Val Trp
85     90     95
Phe His Tyr Pro Trp Val Phe Gly Asp Leu Gly Cys Arg Gly Tyr Tyr
100    105    110
Phe Val His Glu Leu Cys Ala Tyr Ala Thr Val Leu Ser Val Ala Gly
115    120    125
Leu Ser Ala Glu Arg Cys Leu Ala Val Cys Gln Pro Leu Arg Ala Arg
130    135    140
Ser Leu Leu Thr Pro Arg Arg Thr Arg Trp Leu Val Ala Leu Ser Trp
145    150    155    160
Ala Ala Ser Leu Gly Leu Ala Leu Pro Met Ala Val Ile Met Gly Gln
165    170    175
Lys His Glu Leu Glu Thr Ala Asp Gly Glu Pro Glu Pro Ala Ser Arg
180    185    190
Val Cys Thr Val Leu Val Ser Arg Thr Ala Leu Gln Val Phe Ile Gln
195    200    205
Val Asn Val Leu Val Ser Phe Val Leu Pro Leu Ala Leu Thr Ala Phe
210    215    220
Leu Asn Gly Val Thr Val Ser His Leu Leu Ala Leu Cys Ser Gln Val
225    230    235    240
Pro Ser Thr Ser Thr Pro Gly Ser Ser Thr Pro Ser Arg Leu Glu Leu
245    250    255
Leu Ser Glu Glu Gly Leu Leu Ser Phe Ile Val Trp Lys Lys Thr Phe
260    265    270
Ile Gln Gly Gly Gln Val Ser Leu Val Arg His Lys Asp Val Arg Arg
275    280    285
Ile Arg Ser Leu Gln Arg Ser Val Gln Val Leu Arg Ala Ile Val Val
290    295    300
Met Tyr Val Ile Cys Trp Leu Pro Tyr His Ala Arg Arg Leu Met Tyr
305    310    315    320
Cys Tyr Val Pro Asp Asp Ala Trp Thr Asp Pro Leu Tyr Asn Phe Tyr
325    330    335
His Tyr Phe Tyr Met Val Thr Asn Thr Leu Phe Tyr Val Ser Ser Ala
340    345    350
Val Thr Pro Leu Leu Tyr Asn Ala Val Ser Ser Ser Phe Arg Lys Leu
355    360    365
Phe Leu Glu Ala Val Ser Ser Leu Cys Gly Glu His His Pro Met Lys
370    375    380
Arg Leu Pro Pro Lys Pro Gln Ser Pro Thr Leu Met Asp Thr Ala Ser
385    390    395    400
Gly Phe Gly Asp Pro Pro Glu Thr Arg Thr
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<211> 3278

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (482)...(3001)

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cttgccctgg tgttctacca gaaaaacgtc tccaatcac ccaggaaagc tgtccacagt 180
agtccccctt tatccacggg gtcactttcc atgggttcag ttatctgcgg tcaaccacgg 240
tctgacaata ttaaattggaa aattcttcaa acagttccca agttttccct tgtgcattgt 300
tctgagcagt gtgatggaga gtctctgccg tgccatctgg gatgcaaacc gtccctgtgt 360
ccccacgtc caggccgtag atgtccccc cgggtcagtc acttagtcgt cagatcgccc 420
gtcctggtat cacagtgttt ctgttcaggt tgcacactgg gccacagagg atccagcaag 480
g atg aag aaa tgg agc agc aca gac ttg ggg aca gct gcg gac cca ctc 529
Met Lys Lys Trp Ser Ser Thr Asp Leu Gly Thr Ala Ala Asp Pro Leu
  1          5          10          15

caa aag gac acc tgc cca gac ccc ctg gat gga gac cct aac tcc agg 577
Gln Lys Asp Thr Cys Pro Asp Pro Leu Asp Gly Asp Pro Asn Ser Arg
          20          25          30

cca cct cca gcc aag ccc cag ctc ccc acg gcc aag agc cgc acc cgg 625
Pro Pro Pro Ala Lys Pro Gln Leu Pro Thr Ala Lys Ser Arg Thr Arg
          35          40          45

ctc ttt ggg aag ggt gac tgc gag gag gct ttc ccg gtg gat tgc ccc 673
Leu Phe Gly Lys Gly Asp Ser Glu Glu Ala Phe Pro Val Asp Cys Pro
          50          55          60

cac gag gaa ggt gag ttg gac tcc tgc ccg acc atc aca gtc agc cct 721
His Glu Glu Gly Glu Leu Asp Ser Cys Pro Thr Ile Thr Val Ser Pro
          65          70          75          80

gtt atc acc atc cag agg cca gga gac ggc ccc acc ggt gcc agg ctg 769
Val Ile Thr Ile Gln Arg Pro Gly Asp Gly Pro Thr Gly Ala Arg Leu
          85          90          95

ctg tcc cag gac tct gtc gcc gcc agc acc gag aag acc ctc agg ctc 817
Leu Ser Gln Asp Ser Val Ala Ala Ser Thr Glu Lys Thr Leu Arg Leu
          100          105          110

tat gat cgc agg agt atc ttt gaa gcc gtt gct cag aac aac tgc cag 865
Tyr Asp Arg Arg Ser Ile Phe Glu Ala Val Ala Gln Asn Asn Cys Gln
          115          120          125

gat ctg gag agc ctg ctg ctc ttc ctg cag aag agc aag aag cac ctc 913
Asp Leu Glu Ser Leu Leu Leu Phe Leu Gln Lys Ser Lys Lys His Leu
          130          135          140

aca gac aac gag ttc aaa gac cct gag aca ggg aag acc tgt ctg ctg 961
Thr Asp Asn Glu Phe Lys Asp Pro Glu Thr Gly Lys Thr Cys Leu Leu
          145          150          155          160

aaa gcc atg ctc aac ctg cac gac gga cag aac acc acc atc ccc ctg 1009
Lys Ala Met Leu Asn Leu His Asp Gly Gln Asn Thr Thr Ile Pro Leu
          165          170          175

ctc ctg gag atc gcg cgg caa acg gac agc ctg aag gag ctt gtc aac 1057
Leu Leu Glu Ile Ala Arg Gln Thr Asp Ser Leu Lys Glu Leu Val Asn
          180          185          190

gcc agc tac acg gac agc tac tac aag ggc cag aca gca ctg cac atc 1105
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Ala	Ser	Tyr	Thr	Asp	Ser	Tyr	Tyr	Lys	Gly	Gln	Thr	Ala	Leu	His	Ile		
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gcc	atc	gag	aga	cgc	aac	atg	gcc	ctg	gtg	acc	ctc	ctg	gtg	gag	aac	1153	
Ala	Ile	Glu	Arg	Arg	Asn	Met	Ala	Leu	Val	Thr	Leu	Leu	Val	Glu	Asn		
	210					215					220						
gga	gca	gac	gtc	cag	gct	gcg	gcc	cat	ggg	gac	ttc	ttt	aag	aaa	acc	1201	
Gly	Ala	Asp	Val	Gln	Ala	Ala	Ala	His	Gly	Asp	Phe	Phe	Lys	Lys	Thr		
225					230					235					240		
aaa	ggg	cgg	cct	gga	ttc	tac	ttc	ggt	gaa	ctg	ccc	ctg	tcc	ctg	gcc	1249	
Lys	Gly	Arg	Pro	Gly	Phe	Tyr	Phe	Gly	Glu	Leu	Pro	Leu	Ser	Leu	Ala		
			245						250					255			
gcg	tgc	acc	aac	cag	ctg	ggc	atc	gtg	aag	ttc	ctg	ctg	cag	aac	tcc	1297	
Ala	Cys	Thr	Asn	Gln	Leu	Gly	Ile	Val	Lys	Phe	Leu	Leu	Gln	Asn	Ser		
			260					265					270				
tgg	cag	acg	gcc	gac	atc	agc	gcc	agg	gac	tcg	gtg	ggc	aac	acg	gtg	1345	
Trp	Gln	Thr	Ala	Asp	Ile	Ser	Ala	Arg	Asp	Ser	Val	Gly	Asn	Thr	Val		
	275						280					285					
ctg	cac	gcc	ctg	gtg	gag	gtg	gcc	gac	aac	acg	gcc	gac	aac	acg	aag	1393	
Leu	His	Ala	Leu	Val	Glu	Val	Ala	Asp	Asn	Thr	Ala	Asp	Asn	Thr	Lys		
	290					295					300						
ttt	gtg	acg	agc	atg	tac	aat	gag	att	ctg	atg	ctg	ggg	gcc	aaa	ctg	1441	
Phe	Val	Thr	Ser	Met	Tyr	Asn	Glu	Ile	Leu	Met	Leu	Gly	Ala	Lys	Leu		
305					310				315						320		
cac	ccg	acg	ctg	aag	ctg	gag	gag	ctc	acc	aac	aag	aag	gga	atg	acg	1489	
His	Pro	Thr	Leu	Lys	Leu	Glu	Glu	Leu	Thr	Asn	Lys	Lys	Gly	Met	Thr		
				325					330					335			
ccg	ctg	gct	ctg	gca	gct	ggg	acc	ggg	aag	atc	ggg	gtc	ttg	gcc	tat	1537	
Pro	Leu	Ala	Leu	Ala	Ala	Gly	Thr	Gly	Lys	Ile	Gly	Val	Leu	Ala	Tyr		
			340					345					350				
att	ctc	cag	cgg	gag	atc	cag	gag	ccc	gag	tgc	agg	cac	ctg	tcc	agg	1585	
Ile	Leu	Gln	Arg	Glu	Ile	Gln	Glu	Pro	Glu	Cys	Arg	His	Leu	Ser	Arg		
		355					360					365					
aag	ttc	acc	gag	tgg	gcc	tac	ggg	ccc	gtg	cac	tcc	tcg	ctg	tac	gac	1633	
Lys	Phe	Thr	Glu	Trp	Ala	Tyr	Gly	Pro	Val	His	Ser	Ser	Leu	Tyr	Asp		
	370					375					380						
ctg	tcc	tgc	atc	gac	acc	tgc	gag	aag	aac	tcg	gtg	ctg	gag	gtg	atc	1681	
Leu	Ser	Cys	Ile	Asp	Thr	Cys	Glu	Lys	Asn	Ser	Val	Leu	Glu	Val	Ile		
385					390					395					400		
gcc	tac	agc	agc	agc	gag	acc	cct	aat	cgc	cac	gac	atg	ctc	ttg	gtg	1729	
Ala	Tyr	Ser	Ser	Ser	Glu	Thr	Pro	Asn	Arg	His	Asp	Met	Leu	Leu	Val		
				405					410					415			
gag	ccg	ctg	aac	cga	ctc	ctg	cag	gac	aag	tgg	gac	aga	ttc	gtc	aag	1777	
Glu	Pro	Leu	Asn	Arg	Leu	Leu	Gln	Asp	Lys	Trp	Asp	Arg	Phe	Val	Lys		
			420					425					430				
cgc	atc	ttc	tac	ttc	aac	ttc	ctg	gtc	tac	tgc	ctg	tac	atg	atc	atc	1825	
Arg	Ile	Phe	Tyr	Phe	Asn	Phe	Leu	Val	Tyr	Cys	Leu	Tyr	Met	Ile	Ile		

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aag atg gaa aaa att gga gac tat ttc cga gtt act gga gag atc ctg Lys Met Glu Lys Ile Gly Asp Tyr Phe Arg Val Thr Gly Glu Ile Leu 465 470 475 480			1921
tct gtg tta gga gga gtc tac ttc ttt ttc cga ggg att cag tat ttc Ser Val Leu Gly Gly Val Tyr Phe Phe Phe Arg Gly Ile Gln Tyr Phe 485 490 495			1969
ctg cag agg cgg ccg tcg atg aag acc ctg ttt gtg gac agc tac agt Leu Gln Arg Arg Pro Ser Met Lys Thr Leu Phe Val Asp Ser Tyr Ser 500 505 510			2017
gag atg ctt ttc ttt ctg cag tca ctg ttc atg ctg gcc acc gtg gtg Glu Met Leu Phe Phe Leu Gln Ser Leu Phe Met Leu Ala Thr Val Val 515 520 525			2065
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ctg gcc ttg ggc tgg acc aac atg ctc tac tac acc cgc ggt ttc cag Leu Ala Leu Gly Trp Thr Asn Met Leu Tyr Tyr Thr Arg Gly Phe Gln 545 550 555 560			2161
cag atg ggc atc tat gcc gtc atg ata gag aag atg atc ctg aga gac Gln Met Gly Ile Tyr Ala Val Met Ile Glu Lys Met Ile Leu Arg Asp 565 570 575			2209
ctg tgc cgt ttc atg ttt gtc tac atc gtc ttc ttg ttc ggg ttt tcc Leu Cys Arg Phe Met Phe Val Tyr Ile Val Phe Leu Phe Gly Phe Ser 580 585 590			2257
aca gcg gtg gtg acg ctg att gaa gac ggg aag aat gac tcc ctg ccg Thr Ala Val Val Thr Leu Ile Glu Asp Gly Lys Asn Asp Ser Leu Pro 595 600 605			2305
tct gag tcc acg tcg cac agg tgg cgg ggg cct gcc tgc agg ccc ccc Ser Glu Ser Thr Ser His Arg Trp Arg Gly Pro Ala Cys Arg Pro Pro 610 615 620			2353
gat agc tcc tac aac agc ctg tac tcc acc tgc ctg gag ctg ttc aag Asp Ser Ser Tyr Asn Ser Leu Tyr Ser Thr Cys Leu Glu Leu Phe Lys 625 630 635 640			2401
ttc acc atc ggc atg ggc gac ctg gag ttc act gag aac tat gac ttc Phe Thr Ile Gly Met Gly Asp Leu Glu Phe Thr Glu Asn Tyr Asp Phe 645 650 655			2449
aag gct gtc ttc atc atc ctg ctg ctg gcc tat gta att ctc acc tac Lys Ala Val Phe Ile Ile Leu Leu Leu Ala Tyr Val Ile Leu Thr Tyr 660 665 670			2497
atc ctc ctg ctc aac atg ctc atc gcc ctc atg ggt gag act gtc aac Ile Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu Thr Val Asn 675 680 685			2545

aag atc gca cag gag agc aag aac atc tgg aag ctg cag aga gcc atc 2593  
Lys Ile Ala Gln Glu Ser Lys Asn Ile Trp Lys Leu Gln Arg Ala Ile  
690 695 700

acc atc ctg gac acg gag aag agc ttc ctt aag tgc atg agg aag gcc 2641  
Thr Ile Leu Asp Thr Glu Lys Ser Phe Leu Lys Cys Met Arg Lys Ala  
705 710 715 720

ttc cgc tca ggc aag ctg ctg cag gtg ggg tac aca cct gat ggc aag 2689  
Phe Arg Ser Gly Lys Leu Leu Gln Val Gly Tyr Thr Pro Asp Gly Lys  
725 730 735

gac gac tac cgg tgg tgc ttc agg gtg gac gag gtg aac tgg acc acc 2737  
Asp Asp Tyr Arg Trp Cys Phe Arg Val Asp Glu Val Asn Trp Thr Thr  
740 745 750

tgg aac acc aac gtg ggc atc atc aac gaa gac ccg ggc aac tgt gag 2785  
Trp Asn Thr Asn Val Gly Ile Ile Asn Glu Asp Pro Gly Asn Cys Glu  
755 760 765

ggc gtc aag cgc acc ctg agc ttc tcc ctg cgg tca agc aga gtt tca 2833  
Gly Val Lys Arg Thr Leu Ser Phe Ser Leu Arg Ser Ser Arg Val Ser  
770 775 780

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Gly Arg His Trp Lys Asn Phe Ala Leu Val Pro Leu Leu Arg Glu Ala  
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agt gct cga gat agg cag tct gct cag ccc gag gaa gtt tat ctg cga 2929  
Ser Ala Arg Asp Arg Gln Ser Ala Gln Pro Glu Glu Val Tyr Leu Arg  
805 810 815

cag ttt tca ggg tct ctg aag cca gag gac gct gag gtc ttc aag agt 2977  
Gln Phe Ser Gly Ser Leu Lys Pro Glu Asp Ala Glu Val Phe Lys Ser  
820 825 830

cct gcc gct tcc ggg gag aag tga ggacgtcacg cagacagcac tgtcaacact 3031  
Pro Ala Ala Ser Gly Glu Lys \*  
835

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His	Glu	Glu	Gly	Glu	Leu	Asp	Ser	Cys	Pro	Thr	Ile	Thr	Val	Ser	Pro
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Val	Ile	Thr	Ile	Gln	Arg	Pro	Gly	Asp	Gly	Pro	Thr	Gly	Ala	Arg	Leu
				85					90					95	
Leu	Ser	Gln	Asp	Ser	Val	Ala	Ala	Ser	Thr	Glu	Lys	Thr	Leu	Arg	Leu
			100					105					110		
Tyr	Asp	Arg	Arg	Ser	Ile	Phe	Glu	Ala	Val	Ala	Gln	Asn	Asn	Cys	Gln
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Asp	Leu	Glu	Ser	Leu	Leu	Leu	Phe	Leu	Gln	Lys	Ser	Lys	Lys	His	Leu
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Thr	Asp	Asn	Glu	Phe	Lys	Asp	Pro	Glu	Thr	Gly	Lys	Thr	Cys	Leu	Leu
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Lys	Ala	Met	Leu	Asn	Leu	His	Asp	Gly	Gln	Asn	Thr	Thr	Ile	Pro	Leu
				165					170					175	
Leu	Leu	Glu	Ile	Ala	Arg	Gln	Thr	Asp	Ser	Leu	Lys	Glu	Leu	Val	Asn
			180					185					190		
Ala	Ser	Tyr	Thr	Asp	Ser	Tyr	Tyr	Lys	Gly	Gln	Thr	Ala	Leu	His	Ile
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Ala	Ile	Glu	Arg	Arg	Asn	Met	Ala	Leu	Val	Thr	Leu	Leu	Val	Glu	Asn
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Gly	Ala	Asp	Val	Gln	Ala	Ala	His	Gly	Asp	Phe	Phe	Lys	Lys	Thr	
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Lys	Gly	Arg	Pro	Gly	Phe	Tyr	Phe	Gly	Glu	Leu	Pro	Leu	Ser	Leu	Ala
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Ala	Cys	Thr	Asn	Gln	Leu	Gly	Ile	Val	Lys	Phe	Leu	Leu	Gln	Asn	Ser
			260					265					270		
Trp	Gln	Thr	Ala	Asp	Ile	Ser	Ala	Arg	Asp	Ser	Val	Gly	Asn	Thr	Val
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Leu	His	Ala	Leu	Val	Glu	Val	Ala	Asp	Asn	Thr	Ala	Asp	Asn	Thr	Lys
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Phe	Val	Thr	Ser	Met	Tyr	Asn	Glu	Ile	Leu	Met	Leu	Gly	Ala	Lys	Leu
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His	Pro	Thr	Leu	Lys	Leu	Glu	Glu	Leu	Thr	Asn	Lys	Lys	Gly	Met	Thr
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Pro	Leu	Ala	Leu	Ala	Ala	Gly	Thr	Gly	Lys	Ile	Gly	Val	Leu	Ala	Tyr
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Ile	Leu	Gln	Arg	Glu	Ile	Gln	Glu	Pro	Glu	Cys	Arg	His	Leu	Ser	Arg
		355					360					365			
Lys	Phe	Thr	Glu	Trp	Ala	Tyr	Gly	Pro	Val	His	Ser	Ser	Leu	Tyr	Asp
	370					375					380				
Leu	Ser	Cys	Ile	Asp	Thr	Cys	Glu	Lys	Asn	Ser	Val	Leu	Glu	Val	Ile
385					390					395					400
Ala	Tyr	Ser	Ser	Ser	Glu	Thr	Pro	Asn	Arg	His	Asp	Met	Leu	Leu	Val
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Glu	Pro	Leu	Asn	Arg	Leu	Leu	Gln	Asp	Lys	Trp	Asp	Arg	Phe	Val	Lys
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Arg	Ile	Phe	Tyr	Phe	Asn	Phe	Leu	Val	Tyr	Cys	Leu	Tyr	Met	Ile	Ile
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Phe	Thr	Met	Ala	Ala	Tyr	Tyr	Arg	Pro	Val	Asp	Gly	Leu	Pro	Pro	Phe
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Lys	Met	Glu	Lys	Ile	Gly	Asp	Tyr	Phe	Arg	Val	Thr	Gly	Glu	Ile	Leu
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Ser	Val	Leu	Gly	Gly	Val	Tyr	Phe	Phe	Phe	Arg	Gly	Ile	Gln	Tyr	Phe
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Leu	Tyr	Phe	Ser	His	Leu	Lys	Glu	Tyr	Val	Ala	Ser	Met	Val	Phe	Ser
	530					535					540				
Leu	Ala	Leu	Gly	Trp	Thr	Asn	Met	Leu	Tyr	Tyr	Thr	Arg	Gly	Phe	Gln

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Gln Met Gly Ile Tyr	Ala Val Met Ile Glu Lys Met Ile Leu Arg Asp					
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Leu Cys Arg Phe Met Phe Val Tyr Ile Val Phe Leu Phe Gly Phe Ser						
	580	585	590			
Thr Ala Val Val Thr Leu Ile Glu Asp Gly Lys Asn Asp Ser Leu Pro						
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Ser Glu Ser Thr Ser His Arg Trp Arg Gly Pro Ala Cys Arg Pro Pro						
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Asp Ser Ser Tyr Asn Ser Leu Tyr Ser Thr Cys Leu Glu Leu Phe Lys						
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Phe Thr Ile Gly Met Gly Asp Leu Glu Phe Thr Glu Asn Tyr Asp Phe						
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Lys Ala Val Phe Ile Ile Leu Leu Leu Ala Tyr Val Ile Leu Thr Tyr						
	660	665	670			
Ile Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu Thr Val Asn						
	675	680	685			
Lys Ile Ala Gln Glu Ser Lys Asn Ile Trp Lys Leu Gln Arg Ala Ile						
	690	695	700			
Thr Ile Leu Asp Thr Glu Lys Ser Phe Leu Lys Cys Met Arg Lys Ala						
	705	710	715			
Phe Arg Ser Gly Lys Leu Leu Gln Val Gly Tyr Thr Pro Asp Gly Lys						
	725	730	735			
Asp Asp Tyr Arg Trp Cys Phe Arg Val Asp Glu Val Asn Trp Thr Thr						
	740	745	750			
Trp Asn Thr Asn Val Gly Ile Ile Asn Glu Asp Pro Gly Asn Cys Glu						
	755	760	765			
Gly Val Lys Arg Thr Leu Ser Phe Ser Leu Arg Ser Ser Arg Val Ser						
	770	775	780			
Gly Arg His Trp Lys Asn Phe Ala Leu Val Pro Leu Leu Arg Glu Ala						
	785	790	795			
Ser Ala Arg Asp Arg Gln Ser Ala Gln Pro Glu Glu Val Tyr Leu Arg						
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 Met Pro  
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ggg aag aga ggc ttg ggc tgg tgg tgg gcc cgg ctg ccc ctt tgc ctg 224  
 Gly Lys Arg Gly Leu Gly Trp Trp Trp Ala Arg Leu Pro Leu Cys Leu  
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ctc ctc agc ctt tac ggc ccc tgg atg cct tcc tcc ctg gga aag ccc 272  
 Leu Leu Ser Leu Tyr Gly Pro Trp Met Pro Ser Ser Leu Gly Lys Pro



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Lys Gly His Pro His Met Asn Ser Ile Arg Ile Asp Gly Asp Ile Thr			
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Leu Gly Gly Leu Phe Pro Val His Gly Arg Gly Ser Glu Gly Lys Pro			
55 60 65			
tgt gga gaa ctt aag aag gaa aag ggc atc cac cgg ctg gag gcc atg			416
Cys Gly Glu Leu Lys Lys Glu Lys Gly Ile His Arg Leu Glu Ala Met			
70 75 80			
ctg ttc gcc ctg gat cgc atc aac aac gac ccg gac ctg ctg cct aac			464
Leu Phe Ala Leu Asp Arg Ile Asn Asn Asp Pro Asp Leu Leu Pro Asn			
85 90 95			
atc acg ctg ggc gcc cgc att ctg gac acc tgc tcc agg gac acc cat			512
Ile Thr Leu Gly Ala Arg Ile Leu Asp Thr Cys Ser Arg Asp Thr His			
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gcc ctc gag cag tcg ctg acc ttt gtg cag gcg ctc atc gag aag gat			560
Ala Leu Glu Gln Ser Leu Thr Phe Val Gln Ala Leu Ile Glu Lys Asp			
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ggc aca gag gtc cgc tgt ggc agt ggc ggc cca ccc atc atc acc aag			608
Gly Thr Glu Val Arg Cys Gly Ser Gly Gly Pro Pro Ile Ile Thr Lys			
135 140 145			
cct gaa cgt gtg gtg ggt gtc atc ggt gct tca ggg agc tcg gtc tcc			656
Pro Glu Arg Val Val Gly Val Ile Gly Ala Ser Gly Ser Ser Val Ser			
150 155 160			
atc atg gtg gcc aac atc ctt cgc ctc ttc aag ata ccc cag atc agc			704
Ile Met Val Ala Asn Ile Leu Arg Leu Phe Lys Ile Pro Gln Ile Ser			
165 170 175			
tac gcc tcc aca gcg cca gac ctg agt gac aac agc cgc tac gac ttc			752
Tyr Ala Ser Thr Ala Pro Asp Leu Ser Asp Asn Ser Arg Tyr Asp Phe			
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ttc tcc cgc gtg gtg ccc tcg gac acg tac cag gcc cag gcc atg gtg			800
Phe Ser Arg Val Val Pro Ser Asp Thr Tyr Gln Ala Gln Ala Met Val			
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Asp Ile Val Arg Ala Leu Lys Trp Asn Tyr Val Ser Thr Val Ala Ser			
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Glu Gly Ser Tyr Gly Glu Ser Gly Val Glu Ala Phe Ile Gln Lys Ser			
230 235 240			
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Arg Glu Asp Gly Gly Val Cys Ile Ala Gln Ser Val Lys Ile Pro Arg			
245 250 255			
gag ccc aag gca ggc gag ttc gac aag atc atc cgc cgc ctc ctg gag			992
Glu Pro Lys Ala Gly Glu Phe Asp Lys Ile Ile Arg Arg Leu Leu Glu			
260 265 270			

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Thr	Ser	Asn	Ala	Arg	Ala	Val	Ile	Ile	Phe	Ala	Asn	Glu	Asp	Asp	Ile	
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agg	cgt	gtg	ctg	gag	gca	gca	cga	agg	gcc	aac	cag	aca	ggc	cat	ttc	1088
Arg	Arg	Val	Leu	Glu	Ala	Ala	Arg	Arg	Ala	Asn	Gln	Thr	Gly	His	Phe	
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ttc	tgg	atg	ggc	tct	gac	agc	tgg	ggc	tcc	aag	att	gca	cct	gtg	ctg	1136
Phe	Trp	Met	Gly	Ser	Asp	Ser	Trp	Gly	Ser	Lys	Ile	Ala	Pro	Val	Leu	
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cac	ctg	gag	gag	gtg	gct	gag	ggg	gct	gtc	acg	atc	ctc	ccc	aag	agg	1184
His	Leu	Glu	Glu	Val	Ala	Glu	Gly	Ala	Val	Thr	Ile	Leu	Pro	Lys	Arg	
		325					330					335				
atg	tcc	gta	cga	ggc	ttc	gac	cgc	tac	ttc	tcc	agc	cgc	acg	ctg	gac	1232
Met	Ser	Val	Arg	Gly	Phe	Asp	Arg	Tyr	Phe	Ser	Ser	Arg	Thr	Leu	Asp	
	340					345					350					
aac	aac	cgg	cgc	aac	atc	tgg	ttt	gcc	gag	ttc	tgg	gag	gac	aac	ttc	1280
Asn	Asn	Arg	Arg	Asn	Ile	Trp	Phe	Ala	Glu	Phe	Trp	Glu	Asp	Asn	Phe	
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His	Cys	Lys	Leu	Ser	Arg	His	Ala	Leu	Lys	Lys	Gly	Ser	His	Val	Lys	
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aag	tgc	acc	aac	cgt	gag	cga	att	ggg	cag	gat	tca	gct	tat	gag	cag	1376
Lys	Cys	Thr	Asn	Arg	Glu	Arg	Ile	Gly	Gln	Asp	Ser	Ala	Tyr	Glu	Gln	
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gag	ggg	aag	gtg	cag	ttt	gtg	atc	gat	gcc	gtg	tac	gcc	atg	ggc	cac	1424
Glu	Gly	Lys	Val	Gln	Phe	Val	Ile	Asp	Ala	Val	Tyr	Ala	Met	Gly	His	
		405					410					415				
gcg	ctg	cac	gcc	atg	cac	cgt	gac	ctg	tgt	ccc	ggc	cgc	gtg	ggg	ctc	1472
Ala	Leu	His	Ala	Met	His	Arg	Asp	Leu	Cys	Pro	Gly	Arg	Val	Gly	Leu	
	420					425					430					
tgc	ccg	cgc	atg	gac	cct	gta	gat	ggc	acc	cag	ctg	ctt	aag	tac	atc	1520
Cys	Pro	Arg	Met	Asp	Pro	Val	Asp	Gly	Thr	Gln	Leu	Leu	Lys	Tyr	Ile	
435				440					445						450	
cga	aac	gtc	aac	ttc	tca	ggc	atc	gca	ggg	aac	cct	gtg	acc	ttc	aat	1568
Arg	Asn	Val	Asn	Phe	Ser	Gly	Ile	Ala	Gly	Asn	Pro	Val	Thr	Phe	Asn	
				455					460					465		
gag	aat	gga	gat	gcg	cct	ggg	cgc	tat	gac	atc	tac	caa	tac	cag	ctg	1616
Glu	Asn	Gly	Asp	Ala	Pro	Gly	Arg	Tyr	Asp	Ile	Tyr	Gln	Tyr	Gln	Leu	
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cgc	aac	gat	tct	gcc	gag	tac	aag	gtc	att	ggc	tcc	tgg	act	gac	cac	1664
Arg	Asn	Asp	Ser	Ala	Glu	Tyr	Lys	Val	Ile	Gly	Ser	Trp	Thr	Asp	His	
		485					490					495				
ctg	cac	ctt	aga	ata	gag	cgg	atg	cac	tgg	ccg	ggg	agc	ggg	cag	cag	1712
Leu	His	Leu	Arg	Ile	Glu	Arg	Met	His	Trp	Pro	Gly	Ser	Gly	Gln	Gln	
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Leu Pro Arg Ser Ile Cys Ser Leu Pro Cys Gln Pro Gly Glu Arg Lys	
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Lys Thr Val Lys Gly Met Pro Cys Cys Trp His Cys Glu Pro Cys Thr	
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Gly Tyr Gln Tyr Gln Val Asp Arg Tyr Thr Cys Lys Thr Cys Pro Tyr	
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Asp Met Arg Pro Thr Glu Asn Arg Thr Gly Cys Arg Pro Ile Pro Ile	
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Ile Lys Leu Glu Trp Gly Ser Pro Trp Ala Val Leu Pro Leu Phe Leu	
580 585 590	
gcc gtg gtg ggc atc gct gcc acg ttg ttc gtg gtg atc acc ttt gtg	2000
Ala Val Val Gly Ile Ala Ala Thr Leu Phe Val Val Ile Thr Phe Val	
595 600 605 610	
cgc tac aac gac acg ccc atc gtc aag gcc tcg ggc cgt gaa ctg agc	2048
Arg Tyr Asn Asp Thr Pro Ile Val Lys Ala Ser Gly Arg Glu Leu Ser	
615 620 625	
tac gtg ctg ctg gca ggc atc ttc ctg tgc tat gcc acc acc ttc ctc	2096
Tyr Val Leu Leu Ala Gly Ile Phe Leu Cys Tyr Ala Thr Thr Phe Leu	
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Met Ile Ala Glu Pro Asp Leu Gly Thr Cys Ser Leu Arg Arg Ile Phe	
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Leu Gly Leu Gly Met Ser Ile Ser Tyr Ala Ala Leu Leu Thr Lys Thr	
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Asn Arg Ile Tyr Arg Ile Phe Glu Gln Gly Lys Arg Ser Val Ser Ala	
675 680 685 690	
cca cgc ttc atc agc ccc gcc tca cag ctg gcc atc acc ttc agc ctc	2288
Pro Arg Phe Ile Ser Pro Ala Ser Gln Leu Ala Ile Thr Phe Ser Leu	
695 700 705	
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Ile Ser Leu Gln Leu Leu Gly Ile Cys Val Trp Phe Val Val Asp Pro	
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Ser His Ser Val Val Asp Phe Gln Asp Gln Arg Thr Leu Asp Pro Arg	
725 730 735	
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Phe Ala Arg Gly Val Leu Lys Cys Asp Ile Ser Asp Leu Ser Leu Ile	
740 745 750	
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Cys	Leu	Leu	Gly	Tyr	Ser	Met	Leu	Leu	Met	Val	Thr	Cys	Thr	Val	Tyr	
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gcc	atc	aag	aca	cgc	ggc	gtg	ccc	gag	acc	ttc	aat	gag	gcc	aag	ccc	2528
Ala	Ile	Lys	Thr	Arg	Gly	Val	Pro	Glu	Thr	Phe	Asn	Glu	Ala	Lys	Pro	
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att	ggc	ttc	acc	atg	tac	acc	act	tgc	atc	gtc	tgg	ctg	gcc	ttc	atc	2576
Ile	Gly	Phe	Thr	Met	Tyr	Thr	Thr	Cys	Ile	Val	Trp	Leu	Ala	Phe	Ile	
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ccc	atc	ttc	ttt	ggc	acc	tcg	cag	tcg	gcc	gac	aag	ctg	tac	atc	cag	2624
Pro	Ile	Phe	Phe	Gly	Thr	Ser	Gln	Ser	Ala	Asp	Lys	Leu	Tyr	Ile	Gln	
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acg	acg	acg	ctg	acg	gtc	tcg	gtg	agt	ctg	agc	gcc	tcg	gtg	tcc	ctg	2672
Thr	Thr	Thr	Leu	Thr	Val	Ser	Val	Ser	Leu	Ser	Ala	Ser	Val	Ser	Leu	
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gga	atg	ctc	tac	atg	ccc	aaa	gtc	tac	atc	atc	ctc	ttc	cac	ccg	gag	2720
Gly	Met	Leu	Tyr	Met	Pro	Lys	Val	Tyr	Ile	Ile	Leu	Phe	His	Pro	Glu	
835					840				845						850	
cag	aac	gtg	ccc	aag	cgc	aag	cgc	agc	ctc	aaa	gcc	gtc	gtt	acg	gcg	2768
Gln	Asn	Val	Pro	Lys	Arg	Lys	Arg	Ser	Leu	Lys	Ala	Val	Val	Thr	Ala	
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gcc	acc	atg	tcc	aac	aag	ttc	acg	cag	aag	ggc	aac	ttc	cgg	ccc	aac	2816
Ala	Thr	Met	Ser	Asn	Lys	Phe	Thr	Gln	Lys	Gly	Asn	Phe	Arg	Pro	Asn	
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gga	gag	gcc	aag	tct	gag	ctc	tgc	gag	aac	ctt	gag	gcc	cca	gcg	ctg	2864
Gly	Glu	Ala	Lys	Ser	Glu	Leu	Cys	Glu	Asn	Leu	Glu	Ala	Pro	Ala	Leu	
	885					890					895					
gcc	acc	aaa	cag	act	tac	gtc	act	tac	acc	aac	cat	gca	atc	tag		2909
Ala	Thr	Lys	Gln	Thr	Tyr	Val	Thr	Tyr	Thr	Asn	His	Ala	Ile	*		
	900					905					910					
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<211> 912

<212> PRT

<213> Homo sapiens

<400> 66

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Lys	Pro	Lys	Gly	His	Pro	His	Met	Asn	Ser	Ile	Arg	Ile	Asp	Gly	Asp
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Glu	Gln	Glu	Gly	Lys	Val	Gln	Phe	Val	Ile	Asp	Ala	Val	Tyr	Ala	Met
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Asp	His	Leu	His	Leu	Arg	Ile	Glu	Arg	Met	His	Trp	Pro	Gly	Ser
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Pro	Ile	Ile	Lys	Leu	Glu	Trp	Gly	Ser	Pro	Trp	Ala	Val	Leu	Pro
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Phe	Leu	Ala	Val	Val	Gly	Ile	Ala	Ala	Thr	Leu	Phe	Val	Val	Ile
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Ile	Phe	Leu	Gly	Leu	Gly	Met	Ser	Ile	Ser	Tyr	Ala	Ala	Leu	Leu
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Val	Tyr	Ala	Ile	Lys	Thr	Arg	Gly	Val	Pro	Glu	Thr	Phe	Asn	Glu
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Pro	Glu	Gln	Asn	Val	Pro	Lys	Arg	Lys	Arg	Ser	Leu	Lys	Ala	Val
	850					855					860			Val
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Pro	Asn	Gly	Glu	Ala	Lys	Ser	Glu	Leu	Cys	Glu	Asn	Leu	Glu	Ala
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cctttcgcg cgtctgctgc tgctgcccg acgtggaagc agcaagaggc gcttggtcaa 240
gacacactga cggtagctac agaatactgg acatacggat tcagaatcca taaggcttta 300
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Glu Asp Ala Ala Asp Asp Ala Phe Lys Thr Ser Glu Leu Ile Val Asp
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Gly Gln Glu Glu Lys Asp Thr Asp Val Glu Glu Gly Ser Glu Val Glu
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gat gaa aga cca gct tgg aac agt aaa cta caa tac atc ctg gcc caa 663
Asp Glu Arg Pro Ala Trp Asn Ser Lys Leu Gln Tyr Ile Leu Ala Gln
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gtt gga ttt tct gta ggt tta gga aat gtg tgg cga ttt cca tac cta 711
Val Gly Phe Ser Val Gly Leu Gly Asn Val Trp Arg Phe Pro Tyr Leu
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tgt cag aag aat ggg ggc ggt gca tat ctt tta cca tat tta ata cta 759
Cys Gln Lys Asn Gly Gly Gly Ala Tyr Leu Leu Pro Tyr Leu Ile Leu
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ctt atg gta ata ggt att ccc ctt ttt ttc ttg gaa ctc tct gtg ggt 807
Leu Met Val Ile Gly Ile Pro Leu Phe Phe Leu Glu Leu Ser Val Gly
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caa aga att cgg cga ggc agc att ggt gta tgg aat tac ata agc cct 855
Gln Arg Ile Arg Arg Gly Ser Ile Gly Val Trp Asn Tyr Ile Ser Pro
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aaa ctg ggc ggg att gga ttt gca agt tgt gta gtg tgc tat ttt gta 903
Lys Leu Gly Gly Ile Gly Phe Ala Ser Cys Val Val Cys Tyr Phe Val
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gct ctc tac tac aac gtc atc att ggc tgg agt ttg ttt tat ttt tct 951
Ala Leu Tyr Tyr Asn Val Ile Ile Gly Trp Ser Leu Phe Tyr Phe Ser
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Asn Ala Ser His Thr Phe Val Glu Pro Glu Cys Glu Gln Ser Ser Ala	
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Thr Thr Tyr Tyr Trp Tyr Arg Glu Ala Leu Asn Ile Ser Ser Ser Ile	
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Ala Trp Val Met Val Cys Leu Ala Met Ile Lys Gly Ile Gln Ser Ser	
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Gly Lys Ile Ile Tyr Phe Ser Ser Leu Phe Pro Tyr Val Val Leu Ile	
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tgc ttc ctc atc aga gca ttc ctt tta aat ggt tca att gat ggc att	1287
Cys Phe Leu Ile Arg Ala Phe Leu Leu Asn Gly Ser Ile Asp Gly Ile	
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Trp Arg Glu Ala Ala Thr Gln Val Phe Phe Ala Leu Gly Leu Gly Phe	
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Gly Gly Val Ile Ala Phe Ser Ser Tyr Asn Lys Arg Asp Asn Asn Cys	
315 320 325 330	
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His Phe Asp Ala Val Leu Val Ser Phe Ile Asn Phe Phe Thr Ser Val	
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Leu Ala Thr Leu Val Val Phe Ala Val Leu Gly Phe Lys Ala Asn Val	
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Ile Asn Glu Lys Cys Ile Thr Gln Asn Ser Glu Thr Ile Met Lys Phe	
365 370 375	
ttg aaa atg ggg aac att agt cag gat att att ccc cat cat atc aac	1623
Leu Lys Met Gly Asn Ile Ser Gln Asp Ile Ile Pro His His Ile Asn	
380 385 390	
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Leu Ser Thr Val Thr Ala Glu Asp Tyr His Leu Val Tyr Asp Ile Ile	
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Phe	Ile	Ala	Phe	Thr	Glu	Ala	Met	Thr	His	Phe	Pro	Ala	Ser	Pro	Phe	
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Trp	Ser	Val	Met	Phe	Phe	Leu	Met	Leu	Val	Asn	Leu	Gly	Leu	Gly	Ser	
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Met	Phe	Gly	Thr	Ile	Glu	Gly	Ile	Val	Thr	Pro	Ile	Val	Asp	Thr	Phe	
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aaa	gtg	agg	aaa	gaa	att	ctt	act	gtt	atc	tgt	tgt	ctt	ctg	gca	ttt	1959
Lys	Val	Arg	Lys	Glu	Ile	Leu	Thr	Val	Ile	Cys	Cys	Leu	Leu	Ala	Phe	
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Cys	Ile	Gly	Leu	Ile	Phe	Val	Gln	Arg	Ser	Gly	Asn	Tyr	Phe	Val	Thr	
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Tyr	Met	Trp	Lys	Tyr	Ile	Ser	Pro	Leu	Met	Leu	Leu	Ser	Leu	Leu	Ile	
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Ile	Glu	Asp	Lys	Ala	Ser	Glu	Glu	Phe	Leu	Ser	Tyr	Pro	Thr	Trp	Gly	
			605					610				615				
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Leu	Val	Val	Cys	Val	Ser	Leu	Val	Val	Phe	Ala	Ile	Leu	Pro	Val	Pro	
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Val	Val	Phe	Ile	Val	Arg	Arg	Phe	Asn	Leu	Ile	Asp	Asp	Ser	Ser	Gly	
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<211> 730

<212> PRT

<213> Homo sapiens

<400> 68

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Gly	Ala	Tyr	Leu	Leu	Pro	Tyr	Leu	Ile	Leu	Leu	Met	Val	Ile	Gly	Ile
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Pro	Leu	Phe	Leu	Glu	Leu	Ser	Val	Gly	Gln	Arg	Ile	Arg	Arg	Gly	
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Ser	Ile	Gly	Val	Trp	Asn	Tyr	Ile	Ser	Pro	Lys	Leu	Gly	Gly	Ile	Gly
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Phe	Ala	Ser	Cys	Val	Val	Cys	Tyr	Phe	Val	Ala	Leu	Tyr	Tyr	Asn	Val
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Ile	Ile	Gly	Trp	Ser	Leu	Phe	Tyr	Phe	Ser	Gln	Ser	Phe	Gln	Gln	Pro
			165						170				175		
Leu	Pro	Trp	Asp	Gln	Cys	Pro	Leu	Val	Lys	Asn	Ala	Ser	His	Thr	Phe

180

185

190

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Arg	Glu	Ala	Leu	Asn	Ile	Ser	Ser	Ser	Ile	Ser	Glu	Ser	Gly	Gly	Leu
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Asn	Trp	Lys	Met	Thr	Ile	Cys	Leu	Leu	Ala	Ala	Trp	Val	Met	Val	Cys
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Leu	Ala	Met	Ile	Lys	Gly	Ile	Gln	Ser	Ser	Gly	Lys	Ile	Ile	Tyr	Phe
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Ser	Ser	Leu	Phe	Pro	Tyr	Val	Val	Leu	Ile	Cys	Phe	Leu	Ile	Arg	Ala
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Phe	Leu	Leu	Asn	Gly	Ser	Ile	Asp	Gly	Ile	Arg	His	Met	Phe	Thr	Pro
		275					280					285			
Lys	Leu	Glu	Ile	Met	Leu	Glu	Pro	Lys	Val	Trp	Arg	Glu	Ala	Ala	Thr
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Gln	Val	Phe	Phe	Ala	Leu	Gly	Leu	Gly	Phe	Gly	Gly	Val	Ile	Ala	Phe
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Ser	Ser	Tyr	Asn	Lys	Arg	Asp	Asn	Asn	Cys	His	Phe	Asp	Ala	Val	Leu
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Val	Ser	Phe	Ile	Asn	Phe	Phe	Thr	Ser	Val	Leu	Ala	Thr	Leu	Val	Val
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Thr	Gln	Asn	Ser	Glu	Thr	Ile	Met	Lys	Phe	Leu	Lys	Met	Gly	Asn	Ile
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Ser	Gln	Asp	Ile	Ile	Pro	His	His	Ile	Asn	Leu	Ser	Thr	Val	Thr	Ala
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Glu	Phe	Pro	Ala	Leu	His	Leu	Asn	Ser	Cys	Lys	Ile	Glu	Glu	Glu	Leu
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Asn	Lys	Ala	Val	Gln	Gly	Thr	Gly	Leu	Ala	Phe	Ile	Ala	Phe	Thr	Glu
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Ala	Met	Thr	His	Phe	Pro	Ala	Ser	Pro	Phe	Trp	Ser	Val	Met	Phe	Phe
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Gly	Ile	Val	Thr	Pro	Ile	Val	Asp	Thr	Phe	Lys	Val	Arg	Lys	Glu	Ile
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Ala	Thr	Leu	Pro	Leu	Leu	Ile	Val	Val	Ile	Leu	Glu	Asn	Ile	Ala	Val
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Cys	Phe	Val	Tyr	Gly	Ile	Asp	Lys	Phe	Met	Glu	Asp	Leu	Lys	Asp	Met
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Arg	Phe	Asn	Leu	Ile	Asp	Asp	Ser	Ser	Gly	Asn	Leu	Ala	Ser	Val	Thr
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Tyr	Lys	Arg	Gly	Arg	Val	Leu	Lys	Glu	Pro	Val	Asn	Leu	Glu	Gly	Asp
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Asp	Thr	Ser	Leu	Ile	His	Gly	Lys	Ile	Pro	Ser	Glu	Met	Pro	Ser	Pro



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Lys Gly Gly Thr Ser Arg Ala Leu Ala Ala Ala Ser Ser Val Lys Ser	
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gaa gta aaa gaa agt aaa gat ttc atc aaa ccc aag tta gtg act gtg	810
Glu Val Lys Glu Ser Lys Asp Phe Ile Lys Pro Lys Leu Val Thr Val	
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att cga agt gga gtg aag cct aga aaa gcc gtg cgg atc ctt ctg aat	858
Ile Arg Ser Gly Val Lys Pro Arg Lys Ala Val Arg Ile Leu Leu Asn	
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aaa aag act gct cat tcc ttt gaa caa gtc tta aca gat atc acc gaa	906
Lys Lys Thr Ala His Ser Phe Glu Gln Val Leu Thr Asp Ile Thr Glu	
220 225 230	
gcc att aaa cta gac tca gga gtc gtc aag agg ctc tgc acc ctg gat	954
Ala Ile Lys Leu Asp Ser Gly Val Val Lys Arg Leu Cys Thr Leu Asp	
235 240 245	
gga aag cag gtt act tgt ctg caa gac ttt ttt ggt gat gac gat gtt	1002
Gly Lys Gln Val Thr Cys Leu Gln Asp Phe Phe Gly Asp Asp Asp Val	
250 255 260 265	
ttt att gca tgt gga cca gaa aaa ttt cgt tat gcc caa gat gac ttt	1050
Phe Ile Ala Cys Gly Pro Glu Lys Phe Arg Tyr Ala Gln Asp Asp Phe	
270 275 280	
gtc ctg gat cat agt gaa tgt cgt gtc ctg aag tca tct tat tct cga	1098
Val Leu Asp His Ser Glu Cys Arg Val Leu Lys Ser Ser Tyr Ser Arg	
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Ser Ser Ala Val Lys Tyr Ser Gly Ser Lys Ser Pro Gly Pro Ser Arg	
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Arg Ser Lys Ser Pro Ala Ser Val Asn Gly Thr Pro Ser Ser Gln Leu	
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Ser Thr Pro Lys Ser Thr Lys Ser Ser Ser Ser Ser Pro Thr Ser Pro	
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Gly Ser Phe Arg Gly Leu Lys Gln Ile Ser Ala His Gly Arg Ser Ser	
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Ser Asn Val Thr Gly Gly Pro Glu Leu Asp Arg Cys Ile Ser Pro Glu	
365 370 375	
ggt gtg aat gga aac aga tgc tct gaa tca tca act ctt ctt gag aaa	1386
Gly Val Asn Gly Asn Arg Cys Ser Glu Ser Ser Thr Leu Leu Glu Lys	
380 385 390	

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Tyr	Lys	Ile	Gly	Lys	Val	Ile	Gly	Asp	Gly	Asn	Phe	Ala	Val	Val	Lys	
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Glu	Cys	Ile	Asp	Arg	Ser	Thr	Gly	Lys	Glu	Phe	Ala	Leu	Lys	Ile	Ile	
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Asp	Lys	Ala	Lys	Cys	Cys	Gly	Lys	Glu	His	Leu	Ile	Glu	Asn	Glu	Val	
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Ser	Ile	Leu	Arg	Arg	Val	Lys	His	Pro	Asn	Ile	Ile	Met	Leu	Val	Glu	
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Glu	Met	Glu	Thr	Ala	Thr	Glu	Leu	Phe	Leu	Val	Met	Glu	Leu	Val	Lys	
		460					465					470				
ggg	gga	gat	ctc	ttt	gat	gca	att	act	tcg	tcg	acc	aag	tac	act	gag	1674
Gly	Gly	Asp	Leu	Phe	Asp	Ala	Ile	Thr	Ser	Ser	Thr	Lys	Tyr	Thr	Glu	
	475					480					485					
aga	gat	ggc	agt	gcc	atg	gtg	tac	aac	tta	gcc	aat	gcc	ctc	agg	tat	1722
Arg	Asp	Gly	Ser	Ala	Met	Val	Tyr	Asn	Leu	Ala	Asn	Ala	Leu	Arg	Tyr	
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ctc	cat	ggc	ctc	agc	atc	gtg	cac	aga	gac	atc	aaa	cca	gag	aat	ctc	1770
Leu	His	Gly	Leu	Ser	Ile	Val	His	Arg	Asp	Ile	Lys	Pro	Glu	Asn	Leu	
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Thr	Pro	Thr	Tyr	Val	Ala	Pro	Glu	Ile	Ile	Ala	Glu	Thr	Gly	Tyr	Gly	
	555					560					565					
ctg	aag	gtg	gac	att	tgg	gca	gct	ggg	gtg	atc	aca	tac	ata	ctt	ctc	1962
Leu	Lys	Val	Asp	Ile	Trp	Ala	Ala	Gly	Val	Ile	Thr	Tyr	Ile	Leu	Leu	
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Cys	Gly	Phe	Pro	Pro	Phe	Arg	Ser	Glu	Asn	Asn	Leu	Gln	Glu	Asp	Leu	
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ttc	gac	cag	atc	ttg	gct	ggg	aag	ctg	gag	ttt	cag	gcc	ccc	tac	tgg	2058
Phe	Asp	Gln	Ile	Leu	Ala	Gly	Lys	Leu	Glu	Phe	Pro	Ala	Pro	Tyr	Trp	
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gat	aac	atc	acg	gac	tct	gcc	aag	gaa	tta	atc	agt	caa	atg	ctt	cag	2106
Asp	Asn	Ile	Thr	Asp	Ser	Ala	Lys	Glu	Leu	Ile	Ser	Gln	Met	Leu	Gln	
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gta aat gtt gaa gct cgg tgt acc gcg gga caa atc ctg agt cac ccc 2154  
Val Asn Val Glu Ala Arg Cys Thr Ala Gly Gln Ile Leu Ser His Pro  
635 640 645

tgg gtg tca gat gat gcc tcc cag gag aat aac atg caa gct gag gtg 2202  
Trp Val Ser Asp Asp Ala Ser Gln Glu Asn Asn Met Gln Ala Glu Val  
650 655 660 665

aca ggt aaa cta aaa cag cac ttt aat aat gcg ctc ccc aaa cag aac 2250  
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670 675 680

agc act acc acc ggg gtc tcc gtc atc atg aac acg gct cta gat aag 2298  
Ser Thr Thr Thr Gly Val Ser Val Ile Met Asn Thr Ala Leu Asp Lys  
685 690 695

gag ggg cag att ttc tgc agc aag cac tgt caa gac agc ggc agg cct 2346  
Glu Gly Gln Ile Phe Cys Ser Lys His Cys Gln Asp Ser Gly Arg Pro  
700 705 710

ggg atg gag ccc atc tct cca gtt cct ccc tca gtg gag gag atc cct 2394  
Gly Met Glu Pro Ile Ser Pro Val Pro Pro Ser Val Glu Glu Ile Pro  
715 720 725

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Val Pro Gly Glu Ala Val Pro Ala Pro Thr Pro Pro Glu Ser Pro Thr  
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ccc cac tgt cct ccc gct gcc ccg ggt ggt gag cgg gca gga acc tgg 2490  
Pro His Cys Pro Pro Ala Ala Pro Gly Gly Glu Arg Ala Gly Thr Trp  
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Arg Arg His Arg Asp \*  
765

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<211> 766

<212> PRT

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<400> 70

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Glu	Gly	Pro	Leu	Tyr	Thr	Val	Cys	Gly	Thr	Pro	Thr	Tyr	Val	Ala	Pro
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Glu	Ile	Ile	Ala	Glu	Thr	Gly	Tyr	Gly	Leu	Lys	Val	Asp	Ile	Trp	Ala
			565						570					575	
Ala	Gly	Val	Ile	Thr	Tyr	Ile	Leu	Leu	Cys	Gly	Phe	Pro	Pro	Phe	Arg
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Ser	Glu	Asn	Asn	Leu	Gln	Glu	Asp	Leu	Phe	Asp	Gln	Ile	Leu	Ala	Gly
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Lys	Leu	Glu	Phe	Pro	Ala	Pro	Tyr	Trp	Asp	Asn	Ile	Thr	Asp	Ser	Ala
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Lys	Glu	Leu	Ile	Ser	Gln	Met	Leu	Gln	Val	Asn	Val	Glu	Ala	Arg	Cys
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Thr	Ala	Gly	Gln	Ile	Leu	Ser	His	Pro	Trp	Val	Ser	Asp	Asp	Ala	Ser
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Gln	Glu	Asn	Asn	Met	Gln	Ala	Glu	Val	Thr	Gly	Lys	Leu	Lys	Gln	His
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Phe	Asn	Asn	Ala	Leu	Pro	Lys	Gln	Asn	Ser	Thr	Thr	Thr	Gly	Val	Ser
			675				680						685		
Val	Ile	Met	Asn	Thr	Ala	Leu	Asp	Lys	Glu	Gly	Gln	Ile	Phe	Cys	Ser
	690					695				700					
Lys	His	Cys	Gln	Asp	Ser	Gly	Arg	Pro	Gly	Met	Glu	Pro	Ile	Ser	Pro
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Val	Pro	Pro	Ser	Val	Glu	Glu	Ile	Pro	Val	Pro	Gly	Glu	Ala	Val	Pro
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Ala	Pro	Thr	Pro	Pro	Glu	Ser	Pro	Thr	Pro	His	Cys	Pro	Pro	Ala	Ala
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Lys	Ile	Thr	Gln	Val	Leu	Phe	Pro	Leu	Leu	Tyr	Thr	Val	Leu	Phe	Phe	
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Val Gly Leu Ile Thr Asn Gly Leu Ala Met Arg Ile Phe Phe Gln Ile	
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cgg agt aaa tca aac ttt att att ttt ctt aag aac aca gtc att tct	486
Arg Ser Lys Ser Asn Phe Ile Ile Phe Leu Lys Asn Thr Val Ile Ser	
55 60 65	
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Asp Leu Leu Met Ile Leu Thr Phe Pro Phe Lys Ile Leu Ser Asp Ala	
70 75 80 85	
aaa ctg gga aca gga cca ctg aga act ttt gtg tgt caa gtt acc tcc	582
Lys Leu Gly Thr Gly Pro Leu Arg Thr Phe Val Cys Gln Val Thr Ser	
90 95 100	
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Val Ile Phe Tyr Phe Thr Met Tyr Ile Ser Ile Ser Phe Leu Gly Leu	
105 110 115	
ata act atc gat cgc tac cag aag acc acc agg cca ttt aaa aca tcc	678
Ile Thr Ile Asp Arg Tyr Gln Lys Thr Thr Arg Pro Phe Lys Thr Ser	
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Asn Pro Lys Asn Leu Leu Gly Ala Lys Ile Leu Ser Val Val Ile Trp	
135 140 145	
gca ttc atg ttc tta ctc tct ttg cct aac atg att ctg acc aac agg	774
Ala Phe Met Phe Leu Leu Ser Leu Pro Asn Met Ile Leu Thr Asn Arg	
150 155 160 165	
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Gln Pro Arg Asp Lys Asn Val Lys Lys Cys Ser Phe Leu Lys Ser Glu	
170 175 180	
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Phe Gly Leu Val Trp His Glu Ile Val Asn Tyr Ile Cys Gln Val Ile	
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ttc tgg att aat ttc tta att gtt att gta tgt tat aca ctc att aca	918
Phe Trp Ile Asn Phe Leu Ile Val Ile Val Cys Tyr Thr Leu Ile Thr	
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Lys Glu Leu Tyr Arg Ser Tyr Val Arg Thr Arg Gly Val Gly Lys Val	
215 220 225	
ccc agg aaa aag gtg aac gtc aaa gtt ttc att atc att gct gta ttc	1014
Pro Arg Lys Lys Val Asn Val Lys Val Phe Ile Ile Ile Ala Val Phe	
230 235 240 245	
ttt att tgt ttt gtt cct ttc cat ttt gcc cga att cct tac acc ctg	1062
Phe Ile Cys Phe Val Pro Phe His Phe Ala Arg Ile Pro Tyr Thr Leu	
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Ser Gln Thr Arg Asp Val Phe Asp Cys Thr Ala Glu Asn Thr Leu Phe	
265 270 275	

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 Tyr Val Lys Glu Ser Thr Leu Trp Leu Thr Ser Leu Asn Ala Cys Leu  
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 Asp Pro Phe Ile Tyr Phe Phe Leu Cys Lys Ser Phe Arg Asn Ser Leu  
 295 300 305  
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 310 315 320 325  
 aat agg aaa aaa gaa cag gat ggt ggt gac cca aat gaa gag act cca 1302  
 Asn Arg Lys Lys Glu Gln Asp Gly Gly Asp Pro Asn Glu Glu Thr Pro  
 330 335 340  
 atg taa acaaattaac taaggaaata tttcaatctc tttgtgttca gaactcgta 1358  
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aagcaaagcg ctaagtaaaa atattacctg acgaagaagc aactaagtta ataataatga 1418  
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 ccttaattct agagaaacta gttttactaa ttttttaca cttcaataat accatcactg 2078  
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<211> 342

<212> PRT

<213> Homo sapiens

<400> 72

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 Thr Val Leu Phe Phe Val Gly Leu Ile Thr Asn Gly Leu Ala Met Arg  
 35 40 45  
 Ile Phe Phe Gln Ile Arg Ser Lys Ser Asn Phe Ile Ile Phe Leu Lys  
 50 55 60  
 Asn Thr Val Ile Ser Asp Leu Leu Met Ile Leu Thr Phe Pro Phe Lys  
 65 70 75 80  
 Ile Leu Ser Asp Ala Lys Leu Gly Thr Gly Pro Leu Arg Thr Phe Val  
 85 90 95  
 Cys Gln Val Thr Ser Val Ile Phe Tyr Phe Thr Met Tyr Ile Ser Ile  
 100 105 110  
 Ser Phe Leu Gly Leu Ile Thr Ile Asp Arg Tyr Gln Lys Thr Thr Arg  
 115 120 125  
 Pro Phe Lys Thr Ser Asn Pro Lys Asn Leu Leu Gly Ala Lys Ile Leu  
 130 135 140

Ser	Val	Val	Ile	Trp	Ala	Phe	Met	Phe	Leu	Leu	Ser	Leu	Pro	Asn	Met
145					150					155					160
Ile	Leu	Thr	Asn	Arg	Gln	Pro	Arg	Asp	Lys	Asn	Val	Lys	Lys	Cys	Ser
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Phe	Leu	Lys	Ser	Glu	Phe	Gly	Leu	Val	Trp	His	Glu	Ile	Val	Asn	Tyr
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Ile	Cys	Gln	Val	Ile	Phe	Trp	Ile	Asn	Phe	Leu	Ile	Val	Ile	Val	Cys
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Gly	Val	Gly	Lys	Val	Pro	Arg	Lys	Lys	Val	Asn	Val	Lys	Val	Phe	Ile
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Ile	Ile	Ala	Val	Phe	Phe	Ile	Cys	Phe	Val	Pro	Phe	His	Phe	Ala	Arg
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Ile	Pro	Tyr	Thr	Leu	Ser	Gln	Thr	Arg	Asp	Val	Phe	Asp	Cys	Thr	Ala
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Glu	Asn	Thr	Leu	Phe	Tyr	Val	Lys	Glu	Ser	Thr	Leu	Trp	Leu	Thr	Ser
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Leu	Asn	Ala	Cys	Leu	Asp	Pro	Phe	Ile	Tyr	Phe	Phe	Leu	Cys	Lys	Ser
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Phe	Arg	Asn	Ser	Leu	Ile	Ser	Met	Leu	Lys	Cys	Pro	Asn	Ser	Ala	Thr
305					310					315					320
Ser	Leu	Ser	Gln	Asp	Asn	Arg	Lys	Lys	Glu	Gln	Asp	Gly	Gly	Asp	Pro
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<220>  
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 Asn Gly Asn Thr Ser Phe Thr Pro Asn Phe Asn Pro Pro Gln Asp His  
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 Ala Ser Ser Leu Ser Phe Asn Phe Ser Tyr Gly Asp Tyr Asp Leu Pro  
 25 30 35

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 Met Asp Glu Asp Glu Asp Met Thr Lys Thr Arg Thr Phe Phe Ala Ala  
 40 45 50

aag atc gtc att ggc att gca ctg gca ggc atc atg ctg gtc tgc ggc 248  
 Lys Ile Val Ile Gly Ile Ala Leu Ala Gly Ile Met Leu Val Cys Gly  
 55 60 65

atc ggt aac ttt gtc ttt atc gct gcc ctc acc cgc tat aag aag ttg 296  
 Ile Gly Asn Phe Val Phe Ile Ala Ala Leu Thr Arg Tyr Lys Lys Leu  
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cgc aac ctc acc aat ctg ctc att gcc aac ctg gcc atc tcc gac ttc	344
Arg Asn Leu Thr Asn Leu Leu Ile Ala Asn Leu Ala Ile Ser Asp Phe	
85 90 95 100	
ctg gtg gcc atc atc tgc tgc ccc ttc gag atg gac tac tac gtg gta	392
Leu Val Ala Ile Ile Cys Cys Pro Phe Glu Met Asp Tyr Tyr Val Val	
105 110 115	
cgg cag ctc tcc tgg gag cat ggc cac gtg ctc tgt gcc tcc gtc aac	440
Arg Gln Leu Ser Trp Glu His Gly His Val Leu Cys Ala Ser Val Asn	
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tac ctg cgc acc gtc tcc ctc tac gtc tcc acc aat gcc ttg ctg gcc	488
Tyr Leu Arg Thr Val Ser Leu Tyr Val Ser Thr Asn Ala Leu Leu Ala	
135 140 145	
att gcc att gac aga tat ctc gcc atc gtt cac ccc ttg aaa cca cgg	536
Ile Ala Ile Asp Arg Tyr Leu Ala Ile Val His Pro Leu Lys Pro Arg	
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atg aat tat caa acg gcc tcc ttc ctg atc gcc ttg gtc tgg atg gtg	584
Met Asn Tyr Gln Thr Ala Ser Phe Leu Ile Ala Leu Val Trp Met Val	
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tcc att ctc att gcc atc cca tcg gct tac ttt gca aca gaa acc gtc	632
Ser Ile Leu Ile Ala Ile Pro Ser Ala Tyr Phe Ala Thr Glu Thr Val	
185 190 195	
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Leu Phe Ile Val Lys Ser Gln Glu Lys Ile Phe Cys Gly Gln Ile Trp	
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Pro Val Asp Gln Gln Leu Tyr Tyr Lys Ser Tyr Phe Leu Phe Ile Phe	
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Gly Val Glu Phe Val Gly Pro Val Val Thr Met Thr Leu Cys Tyr Ala	
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Arg Ile Ser Arg Glu Leu Trp Phe Lys Ala Val Pro Gly Phe Gln Thr	
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Glu Gln Ile Arg Lys Arg Leu Arg Cys Arg Arg Lys Thr Val Leu Val	
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Lys His Tyr Leu Thr Ala Phe Tyr Val Val Glu Cys Ile Ala Met Ser	
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Asn Ser Met Ile Asn Thr Val Cys Phe Val Thr Val Lys Asn Asn Thr	
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Pro Thr Thr Glu Glu Val Asp Cys Ile Arg Leu Lys *	
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 <212> PRT  
 <213> Homo sapiens

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 Tyr Lys Lys Leu Arg Asn Leu Thr Asn Leu Leu Ile Ala Asn Leu Ala  
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 Ile Ser Asp Phe Leu Val Ala Ile Ile Cys Cys Pro Phe Glu Met Asp  
 100 105 110  
 Tyr Tyr Val Val Arg Gln Leu Ser Trp Glu His Gly His Val Leu Cys  
 115 120 125  
 Ala Ser Val Asn Tyr Leu Arg Thr Val Ser Leu Tyr Val Ser Thr Asn  
 130 135 140  
 Ala Leu Leu Ala Ile Ala Ile Asp Arg Tyr Leu Ala Ile Val His Pro  
 145 150 155 160  
 Leu Lys Pro Arg Met Asn Tyr Gln Thr Ala Ser Phe Leu Ile Ala Leu  
 165 170 175  
 Val Trp Met Val Ser Ile Leu Ile Ala Ile Pro Ser Ala Tyr Phe Ala  
 180 185 190  
 Thr Glu Thr Val Leu Phe Ile Val Lys Ser Gln Glu Lys Ile Phe Cys  
 195 200 205  
 Gly Gln Ile Trp Pro Val Asp Gln Gln Leu Tyr Tyr Lys Ser Tyr Phe  
 210 215 220  
 Leu Phe Ile Phe Gly Val Glu Phe Val Gly Pro Val Val Thr Met Thr  
 225 230 235 240  
 Leu Cys Tyr Ala Arg Ile Ser Arg Glu Leu Trp Phe Lys Ala Val Pro  
 245 250 255  
 Gly Phe Gln Thr Glu Gln Ile Arg Lys Arg Leu Arg Cys Arg Arg Lys  
 260 265 270  
 Thr Val Leu Val Leu Met Cys Ile Leu Thr Ala Tyr Val Leu Cys Trp  
 275 280 285  
 Ala Pro Phe Tyr Gly Phe Thr Ile Val Arg Asp Phe Phe Pro Thr Val  
 290 295 300  
 Phe Val Lys Glu Lys His Tyr Leu Thr Ala Phe Tyr Val Val Glu Cys  
 305 310 315 320  
 Ile Ala Met Ser Asn Ser Met Ile Asn Thr Val Cys Phe Val Thr Val  
 325 330 335  
 Lys Asn Asn Thr Met Lys Tyr Phe Lys Lys Met Met Leu Leu His Trp  
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<211> 3433  
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<400> 75

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gaa aag aag gag ccc cag ggc gtt gtc tat gag gat gtg ccg gac gac 157
Glu Lys Lys Glu Pro Gln Gly Val Val Tyr Glu Asp Val Pro Asp Asp
      15              20              25

acg gag gat ttc aag gaa tcg ctt aag gtg gtt ttt gaa gga agt gca 205
Thr Glu Asp Phe Lys Glu Ser Leu Lys Val Val Phe Glu Gly Ser Ala
      30              35              40

tat gga tta caa aac ttt aat aag caa aag aaa tta aaa aca tgt gac 253
Tyr Gly Leu Gln Asn Phe Asn Lys Gln Lys Lys Leu Lys Thr Cys Asp
      45              50              55              60

gat atg gac acc ttc ttc ttg cat tat gct gca gca gaa ggc caa att 301
Asp Met Asp Thr Phe Phe Leu His Tyr Ala Ala Ala Glu Gly Gln Ile
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gag cta atg gag aag atc acc aga gat tcc tct ttg gaa gtg ctg cat 349
Glu Leu Met Glu Lys Ile Thr Arg Asp Ser Ser Leu Glu Val Leu His
      80              85              90

gaa atg gat gat tat gga aat acc cct ctg cat tgt gct gta gaa aaa 397
Glu Met Asp Asp Tyr Gly Asn Thr Pro Leu His Cys Ala Val Glu Lys
      95              100              105

aac caa att gaa agc gtt aag ttt ctt ctc agc aga gga gca aac cca 445
Asn Gln Ile Glu Ser Val Lys Phe Leu Leu Ser Arg Gly Ala Asn Pro
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aac ctc cga aac ttc aac atg atg gct cct ctc cac ata gct gtg cag 493
Asn Leu Arg Asn Phe Asn Met Met Ala Pro Leu His Ile Ala Val Gln
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Gly Met Asn Asn Glu Val Met Lys Val Leu Leu Glu His Arg Thr Ile
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tgc acc aca aat aat agc gaa gca ttg cag att ttg ctt aac aaa gga 637
Cys Thr Thr Asn Asn Ser Glu Ala Leu Gln Ile Leu Leu Asn Lys Gly
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gct aag cca tgt aaa tca aat aaa tgg gga tgt ttc cct att cac caa 685
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Glu Met Ile Lys Met Cys Leu Asp Asn Gly Ala Gln Ile Asp Pro Val	
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Glu Lys Gly Arg Cys Thr Ala Ile His Phe Ala Ala Thr Gln Gly Ala	
270 275 280	
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Thr Glu Ile Val Lys Leu Met Ile Ser Ser Tyr Ser Gly Ser Val Asp	
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Ile Val Asn Thr Thr Asp Gly Cys His Glu Thr Met Leu His Arg Ala	
305 310 315	
tca ttg ttt gat cac cat gag cta gca gac tat tta att tca gtg gga	1069
Ser Leu Phe Asp His His Glu Leu Ala Asp Tyr Leu Ile Ser Val Gly	
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gca gat att aat aag atc gat tct gaa gga cgc tct cca ctt ata tta	1117
Ala Asp Ile Asn Lys Ile Asp Ser Glu Gly Arg Ser Pro Leu Ile Leu	
335 340 345	
gca act gct tct gca tct tgg aat att gta aat ttg cta ctc tct aaa	1165
Ala Thr Ala Ser Ala Ser Trp Asn Ile Val Asn Leu Leu Ser Lys	
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Gly Ala Gln Val Asp Ile Lys Asp Asn Phe Gly Arg Asn Phe Leu His	
365 370 375 380	
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Leu Thr Val Gln Gln Pro Tyr Gly Leu Lys Asn Leu Arg Pro Glu Phe	
385 390 395	
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Met Gln Met Gln Gln Ile Lys Glu Leu Val Met Asp Glu Asp Asn Asp	
400 405 410	
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Gly Cys Thr Pro Leu His Tyr Ala Cys Arg Gln Gly Gly Pro Gly Ser	
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Val Asn Asn Leu Leu Gly Phe Asn Val Ser Ile His Ser Lys Ser Lys	
430 435 440	

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Asp Lys Lys Ser Pro Leu His Phe Ala Ala Ser Tyr Gly Arg Ile Asn	
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Glu Gly Asp Leu His Gly Met Thr Pro Leu His Leu Ala Ala Lys Asn	
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Leu Ser Asp His Asn Gly Trp Thr Ala Leu His His Ala Ser Met Gly	
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525 530 535 540	
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Thr Asp Arg Leu Asp Glu Asp Gly Asn Thr Ala Leu His Phe Ala Ala	
545 550 555	
agg gaa ggc cac gcc aaa gcc gtt gcg ctt ctt ctg agc cac aat gct	1789
Arg Glu Gly His Ala Lys Ala Val Ala Leu Leu Leu Ser His Asn Ala	
560 565 570	
gac ata gtc ctg aac aag cag cag gcc tcc ttt ttg cac ctt gca ctt	1837
Asp Ile Val Leu Asn Lys Gln Gln Ala Ser Phe Leu His Leu Ala Leu	
575 580 585	
cac aat aag agg aag gag gtt gtt ctt acg atc atc agg agc aaa aga	1885
His Asn Lys Arg Lys Glu Val Val Leu Thr Ile Ile Arg Ser Lys Arg	
590 595 600	
tgg gat gaa tgt ctt aag att ttc agt cat aat tct cca ggc aat aaa	1933
Trp Asp Glu Cys Leu Lys Ile Phe Ser His Asn Ser Pro Gly Asn Lys	
605 610 615 620	
tgt cca att aca gaa atg ata gaa tac ctc cct gaa tgc atg aag gta	1981
Cys Pro Ile Thr Glu Met Ile Glu Tyr Leu Pro Glu Cys Met Lys Val	
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Leu Leu Asp Phe Cys Met Leu His Ser Thr Glu Asp Lys Ser Cys Arg	
640 645 650	
gac tat tat atc gag tat aat ttc aaa tat ctt caa tgt cca tta gaa	2077
Asp Tyr Tyr Ile Glu Tyr Asn Phe Lys Tyr Leu Gln Cys Pro Leu Glu	
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Phe Thr Lys Lys Thr Pro Thr Gln Asp Val Ile Tyr Glu Pro Leu Thr	
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gcc ctc aac gca atg gta caa aat aac cgc ata gag ctt ctc aat cat	2173

Ala	Leu	Asn	Ala	Met	Val	Gln	Asn	Asn	Arg	Ile	Glu	Leu	Leu	Asn	His	
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cct	gtg	tgt	aaa	gaa	tat	tta	ctc	atg	aaa	tgg	ttg	gct	tat	gga	ttt	2221
Pro	Val	Cys	Lys	Glu	Tyr	Leu	Leu	Met	Lys	Trp	Leu	Ala	Tyr	Gly	Phe	
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aga	gct	cat	atg	atg	aat	tta	gga	tct	tac	tgt	ctt	ggt	ctc	ata	cct	2269
Arg	Ala	His	Met	Met	Asn	Leu	Gly	Ser	Tyr	Cys	Leu	Gly	Leu	Ile	Pro	
			720					725					730			
atg	acc	att	ctc	gtt	gtc	aat	ata	aaa	cca	gga	atg	gct	ttc	aac	tca	2317
Met	Thr	Ile	Leu	Val	Val	Asn	Ile	Lys	Pro	Gly	Met	Ala	Phe	Asn	Ser	
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act	ggc	atc	atc	aat	gaa	act	agt	gat	cat	tca	gaa	ata	cta	gat	acc	2365
Thr	Gly	Ile	Ile	Asn	Glu	Thr	Ser	Asp	His	Ser	Glu	Ile	Leu	Asp	Thr	
	750					755					760					
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Thr	Asn	Ser	Tyr	Leu	Ile	Lys	Thr	Cys	Met	Ile	Leu	Val	Phe	Leu	Ser	
765					770					775					780	
agt	ata	ttt	ggg	tat	tgc	aaa	gaa	gcg	ggg	caa	att	ttc	caa	cag	aaa	2461
Ser	Ile	Phe	Gly	Tyr	Cys	Lys	Glu	Ala	Gly	Gln	Ile	Phe	Gln	Gln	Lys	
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agg	aat	tat	ttt	atg	gat	ata	agc	aat	gtt	ctt	gaa	tgg	att	atc	tac	2509
Arg	Asn	Tyr	Phe	Met	Asp	Ile	Ser	Asn	Val	Leu	Glu	Trp	Ile	Ile	Tyr	
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Thr	Thr	Gly	Ile	Ile	Phe	Val	Leu	Pro	Leu	Phe	Val	Glu	Ile	Pro	Ala	
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cat	ctg	cag	tgg	caa	tgt	gga	gca	att	gct	gtt	tac	ttc	tat	tgg	atg	2605
His	Leu	Gln	Trp	Gln	Cys	Gly	Ala	Ile	Ala	Val	Tyr	Phe	Tyr	Trp	Met	
	830					835					840					
aat	ttc	tta	ttg	tat	ctt	caa	aga	ttt	gaa	aat	tgt	gga	att	ttt	att	2653
Asn	Phe	Leu	Leu	Tyr	Leu	Gln	Arg	Phe	Glu	Asn	Cys	Gly	Ile	Phe	Ile	
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Val	Met	Leu	Glu	Val	Ile	Leu	Lys	Thr	Leu	Leu	Arg	Ser	Thr	Val	Val	
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Phe	Ile	Phe	Leu	Leu	Leu	Ala	Phe	Gly	Leu	Ser	Phe	Tyr	Ile	Leu	Leu	
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Asn	Leu	Gln	Asp	Pro	Phe	Ser	Ser	Pro	Leu	Leu	Ser	Ile	Ile	Gln	Thr	
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Phe	Ser	Met	Met	Leu	Gly	Asp	Ile	Asn	Tyr	Arg	Glu	Ser	Phe	Leu	Glu	
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cca	tat	ctg	aga	aat	gaa	ttg	gca	cat	cca	gtt	ctg	tcc	ttt	gca	caa	2893
Pro	Tyr	Leu	Arg	Asn	Glu	Leu	Ala	His	Pro	Val	Leu	Ser	Phe	Ala	Gln	

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Leu Val Ser Phe Thr Ile Phe Val Pro Ile Val Leu Met Asn Leu Leu	945	950	955	
att ggt ttg gca gtt ggc gac att gct gag gtc cag aaa cat gca tca				2989
Ile Gly Leu Ala Val Gly Asp Ile Ala Glu Val Gln Lys His Ala Ser	960	965	970	
ttg aag agg ata gct atg cag gtg gaa ctt cat acc agc tta gag aag				3037
Leu Lys Arg Ile Ala Met Gln Val Glu Leu His Thr Ser Leu Glu Lys	975	980	985	
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Lys Leu Pro Leu Trp Phe Leu Arg Lys Val Asp Gln Lys Ser Thr Ile	990	995	1000	
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Val Tyr Pro Asn Lys Pro Arg Ser Gly Gly Met Leu Phe His Ile Phe	1005	1010	1015 1020	
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Cys Phe Leu Phe Cys Thr Gly Glu Ile Arg Gln Glu Ile Pro Asn Ala	1025	1030	1035	
gat aaa tct tta gaa atg gaa ata tta aag cag aaa tac cgg ctg aag				3229
Asp Lys Ser Leu Glu Met Glu Ile Leu Lys Gln Lys Tyr Arg Leu Lys	1040	1045	1050	
gat ctt act ttt ctc ctg gaa aaa cag cat gag ctc att aaa ctg atc				3277
Asp Leu Thr Phe Leu Leu Glu Lys Gln His Glu Leu Ile Lys Leu Ile	1055	1060	1065	
att cag aag atg gag atc atc tct gag aca gag gat gat gat agc cat				3325
Ile Gln Lys Met Glu Ile Ile Ser Glu Thr Glu Asp Asp Asp Ser His	1070	1075	1080	
tgt tct ttt caa gac agg ttt aag aaa gag cag atg gaa caa agg aat				3373
Cys Ser Phe Gln Asp Arg Phe Lys Lys Glu Gln Met Glu Gln Arg Asn	1085	1090	1095 1100	
agc aga tgg aat act gtg ttg aga gca gtc aag gca aaa aca cac cat				3421
Ser Arg Trp Asn Thr Val Leu Arg Ala Val Lys Ala Lys Thr His His	1105	1110	1115	
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Asn	Phe	Asn	Lys	Gln	Lys	Lys	Leu	Lys	Thr	Cys	Asp	Asp	Met	Asp	Thr
	50					55					60				
Phe	Phe	Leu	His	Tyr	Ala	Ala	Ala	Glu	Gly	Gln	Ile	Glu	Leu	Met	Glu
65					70					75					80
Lys	Ile	Thr	Arg	Asp	Ser	Ser	Leu	Glu	Val	Leu	His	Glu	Met	Asp	Asp
				85					90					95	
Tyr	Gly	Asn	Thr	Pro	Leu	His	Cys	Ala	Val	Glu	Lys	Asn	Gln	Ile	Glu
			100					105					110		
Ser	Val	Lys	Phe	Leu	Leu	Ser	Arg	Gly	Ala	Asn	Pro	Asn	Leu	Arg	Asn
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Phe	Asn	Met	Met	Ala	Pro	Leu	His	Ile	Ala	Val	Gln	Gly	Met	Asn	Asn
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Glu	Val	Met	Lys	Val	Leu	Leu	Glu	His	Arg	Thr	Ile	Asp	Val	Asn	Leu
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Glu	Gly	Glu	Asn	Gly	Asn	Thr	Ala	Val	Ile	Ile	Ala	Cys	Thr	Thr	Asn
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Asn	Ser	Glu	Ala	Leu	Gln	Ile	Leu	Leu	Asn	Lys	Gly	Ala	Lys	Pro	Cys
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Lys	Ser	Asn	Lys	Trp	Gly	Cys	Phe	Pro	Ile	His	Gln	Ala	Ala	Phe	Ser
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Gly	Ser	Lys	Glu	Cys	Met	Glu	Ile	Ile	Leu	Arg	Phe	Gly	Glu	Glu	His
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Gly	Tyr	Ser	Arg	Gln	Leu	His	Ile	Asn	Phe	Met	Asn	Asn	Gly	Lys	Ala
225					230					235					240
Thr	Pro	Leu	His	Leu	Ala	Val	Gln	Asn	Gly	Asp	Leu	Glu	Met	Ile	Lys
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Met	Cys	Leu	Asp	Asn	Gly	Ala	Gln	Ile	Asp	Pro	Val	Glu	Lys	Gly	Arg
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Cys	Thr	Ala	Ile	His	Phe	Ala	Ala	Thr	Gln	Gly	Ala	Thr	Glu	Ile	Val
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Lys	Leu	Met	Ile	Ser	Ser	Tyr	Ser	Gly	Ser	Val	Asp	Ile	Val	Asn	Thr
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Thr	Asp	Gly	Cys	His	Glu	Thr	Met	Leu	His	Arg	Ala	Ser	Leu	Phe	Asp
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His	His	Glu	Leu	Ala	Asp	Tyr	Leu	Ile	Ser	Val	Gly	Ala	Asp	Ile	Asn
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Lys	Ile	Asp	Ser	Glu	Gly	Arg	Ser	Pro	Leu	Ile	Leu	Ala	Thr	Ala	Ser
			340					345					350		
Ala	Ser	Trp	Asn	Ile	Val	Asn	Leu	Leu	Leu	Ser	Lys	Gly	Ala	Gln	Val
		355					360					365			
Asp	Ile	Lys	Asp	Asn	Phe	Gly	Arg	Asn	Phe	Leu	His	Leu	Thr	Val	Gln
	370					375					380				
Gln	Pro	Tyr	Gly	Leu	Lys	Asn	Leu	Arg	Pro	Glu	Phe	Met	Gln	Met	Gln
385					390					395					400
Gln	Ile	Lys	Glu	Leu	Val	Met	Asp	Glu	Asp	Asn	Asp	Gly	Cys	Thr	Pro
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Leu	His	Tyr	Ala	Cys	Arg	Gln	Gly	Gly	Pro	Gly	Ser	Val	Asn	Asn	Leu
			420					425					430		
Leu	Gly	Phe	Asn	Val	Ser	Ile	His	Ser	Lys	Ser	Lys	Asp	Lys	Lys	Ser
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	450					455					460				
Leu	Leu	Gln	Asp	Ile	Ser	Asp	Thr	Arg	Leu	Leu	Asn	Glu	Gly	Asp	Leu
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His	Gly	Met	Thr	Pro	Leu	His	Leu	Ala	Ala	Lys	Asn	Gly	His	Asp	Lys
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Val	Val	Gln	Leu	Leu	Leu	Lys	Lys	Gly	Ala	Leu	Phe	Leu	Ser	Asp	His
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Asn	Gly	Trp	Thr	Ala	Leu	His	His	Ala	Ser	Met	Gly	Gly	Tyr	Thr	Gln



Lys Pro Arg Ser Gly Gly Met Leu Phe His Ile Phe Cys Phe Leu Phe  
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 Cys Thr Gly Glu Ile Arg Gln Glu Ile Pro Asn Ala Asp Lys Ser Leu  
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 Leu Leu Glu Lys Gln His Glu Leu Ile Lys Leu Ile Ile Gln Lys Met  
 1060 1065 1070  
 Glu Ile Ile Ser Glu Thr Glu Asp Asp Ser His Cys Ser Phe Gln  
 1075 1080 1085  
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 Val Val Lys Lys Ser Lys Leu His Trp Cys Asn Asn Val Pro Asp Ile  
 65 70 75 80  
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 Phe Ile Ile Asn Leu Ser Val Val Asp Leu Leu Phe Leu Leu Gly Met  
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gag acc atg tgc acc ctc atc acg gcc atg gat gcc aat agt cag ttc	804
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ccc gcc tcc cag cgc agc atc cgg ctg cgg aca aag agg gtg acc cgc	1188
Pro Ala Ser Gln Arg Ser Ile Arg Leu Arg Thr Lys Arg Val Thr Arg	
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aca gcc atc gcc atc tgt ctg gtc ttc ttt gtg tgc tgg gca ccc tac	1236
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Tyr Val Leu Gln Leu Thr Gln Leu Ser Ile Ser Arg Pro Thr Leu Thr	
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Phe Val Tyr Leu Tyr Asn Ala Ala Ile Ser Leu Gly Tyr Ala Asn Ser	
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Cys Leu Asn Pro Phe Val Tyr Ile Val Leu Cys Glu Thr Phe Arg Lys	
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Arg Leu Val Leu Ser Val Lys Pro Ala Ala Gln Gly Gln Leu Arg Ala	
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gtc agc aac gct cag acg gct gac gag gag agg aca gaa agc aaa ggc	1476
Val Ser Asn Ala Gln Thr Ala Asp Glu Glu Arg Thr Glu Ser Lys Gly	
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Thr \*

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35 40 45
Thr Ile Cys Leu Leu Gly Ile Ile Gly Asn Ser Thr Val Ile Phe Ala
50 55 60
Val Val Lys Lys Ser Lys Leu His Trp Cys Asn Asn Val Pro Asp Ile
65 70 75 80
Phe Ile Ile Asn Leu Ser Val Val Asp Leu Leu Phe Leu Leu Gly Met
85 90 95
Pro Phe Met Ile His Gln Leu Met Gly Asn Gly Val Trp His Phe Gly
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Glu Thr Met Cys Thr Leu Ile Thr Ala Met Asp Ala Asn Ser Gln Phe
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145 150 155 160
Thr Leu Val Ile Cys Leu Leu Trp Ala Leu Ser Phe Ile Ser Ile Thr
165 170 175
Pro Val Trp Leu Tyr Ala Arg Leu Ile Pro Phe Pro Gly Gly Ala Val
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225 230 235 240
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245 250 255
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260 265 270
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275 280 285
Phe Val Tyr Leu Tyr Asn Ala Ala Ile Ser Leu Gly Tyr Ala Asn Ser
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 Thr Ala Lys Phe Tyr Trp Ile Leu Thr Met Met Gln Arg Thr His Ser  
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 Gln Glu Tyr Ala His Ser Ile Arg Val Asp Gly Asp Ile Ile Leu Gly  
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 Gly Leu Phe Pro Val His Ala Lys Gly Glu Arg Gly Val Pro Cys Gly  
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gag ctg aag aag gaa aag ggg att cac aga ctg gag gcc atg ctt tat 300  
 Glu Leu Lys Lys Glu Lys Gly Ile His Arg Leu Glu Ala Met Leu Tyr  
 70 75 80

gca att gac cag att aac aag gac cct gat ctc ctt tcc aac atc act 348  
 Ala Ile Asp Gln Ile Asn Lys Asp Pro Asp Leu Leu Ser Asn Ile Thr  
 85 90 95

ctg ggt gtc cgc atc ctc gac acg tgc tct agg gac acc tat gct ttg 396  
 Leu Gly Val Arg Ile Leu Asp Thr Cys Ser Arg Asp Thr Tyr Ala Leu  
 100 105 110

gag cag tct cta aca ttc gtg cag gca tta ata gag aaa gat gct tcg 444  
 Glu Gln Ser Leu Thr Phe Val Gln Ala Leu Ile Glu Lys Asp Ala Ser  
 115 120 125

gat gtg aag tgt gct aat gga gat cca ccc att ttc acc aag ccc gac 492  
 Asp Val Lys Cys Ala Asn Gly Asp Pro Pro Ile Phe Thr Lys Pro Asp  
 130 135 140 145

aag att tct ggc gtc ata ggt gct gca gca agc tcc gtg tcc atc atg 540  
 Lys Ile Ser Gly Val Ile Gly Ala Ala Ser Ser Val Ser Ile Met  
 150 155 160

gtt gct aac att tta aga ctt ttt aag ata cct caa atc agc tat gca 588

Val	Ala	Asn	Ile	Leu	Arg	Leu	Phe	Lys	Ile	Pro	Gln	Ile	Ser	Tyr	Ala		
			165					170					175				
tcc	aca	gcc	cca	gag	cta	agt	gat	aac	acc	agg	tat	gac	ttt	ttc	tct	636	
Ser	Thr	Ala	Pro	Glu	Leu	Ser	Asp	Asn	Thr	Arg	Tyr	Asp	Phe	Phe	Ser		
		180					185					190					
cga	gtg	gtt	ccg	cct	gac	tcc	tac	caa	gcc	caa	gcc	atg	gtg	gac	atc	684	
Arg	Val	Val	Pro	Pro	Asp	Ser	Tyr	Gln	Ala	Gln	Ala	Met	Val	Asp	Ile		
		195				200					205						
gtg	aca	gca	ctg	gga	tgg	aat	tat	gtt	tcg	aca	ctg	gct	tct	gag	ggg	732	
Val	Thr	Ala	Leu	Gly	Trp	Asn	Tyr	Val	Ser	Thr	Leu	Ala	Ser	Glu	Gly		
210					215					220					225		
aac	tat	ggg	gag	agc	ggg	gtg	gag	gcc	ttc	acc	cag	atc	tcg	agg	gag	780	
Asn	Tyr	Gly	Glu	Ser	Gly	Val	Glu	Ala	Phe	Thr	Gln	Ile	Ser	Arg	Glu		
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att	ggg	ggg	gtt	tgc	att	gct	cag	tca	cag	aaa	atc	cca	cgt	gaa	cca	828	
Ile	Gly	Gly	Val	Cys	Ile	Ala	Gln	Ser	Gln	Lys	Ile	Pro	Arg	Glu	Pro		
			245					250					255				
aga	cct	gga	gaa	ttt	gaa	aaa	att	atc	aaa	cgc	ctg	cta	gaa	aca	cct	876	
Arg	Pro	Gly	Glu	Phe	Glu	Lys	Ile	Ile	Lys	Arg	Leu	Leu	Glu	Thr	Pro		
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aat	gct	cga	gca	gtg	att	atg	ttt	gcc	aat	gag	gat	gac	atc	agg	agg	924	
Asn	Ala	Arg	Ala	Val	Ile	Met	Phe	Ala	Asn	Glu	Asp	Asp	Ile	Arg	Arg		
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ata	ttg	gaa	gca	gca	aaa	aaa	cta	aac	caa	agt	ggg	cat	ttt	ctc	tgg	972	
Ile	Leu	Glu	Ala	Ala	Lys	Lys	Leu	Asn	Gln	Ser	Gly	His	Phe	Leu	Trp		
290					295					300					305		
att	ggc	tca	gat	agt	tgg	gga	tcc	aaa	ata	gca	cct	gtc	tat	cag	caa	1020	
Ile	Gly	Ser	Asp	Ser	Trp	Gly	Ser	Lys	Ile	Ala	Pro	Val	Tyr	Gln	Gln		
				310					315					320			
gag	gag	att	gca	gaa	ggg	gct	gtg	aca	att	ttg	ccc	aaa	cga	gca	tca	1068	
Glu	Glu	Ile	Ala	Glu	Gly	Ala	Val	Thr	Ile	Leu	Pro	Lys	Arg	Ala	Ser		
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Ile	Asp	Gly	Phe	Asp	Arg	Tyr	Phe	Arg	Ser	Arg	Thr	Leu	Ala	Asn	Asn		
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cga	aga	aat	gtg	tgg	ttt	gca	gaa	ttc	tgg	gag	gag	aat	ttt	ggc	tgc	1164	
Arg	Arg	Asn	Val	Trp	Phe	Ala	Glu	Phe	Trp	Glu	Glu	Asn	Phe	Gly	Cys		
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aag	tta	gga	tca	cat	ggg	aaa	agg	aac	agt	cat	ata	aag	aaa	tgc	aca	1212	
Lys	Leu	Gly	Ser	His	Gly	Lys	Arg	Asn	Ser	His	Ile	Lys	Lys	Cys	Thr		
370					375					380					385		
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Gly	Leu	Glu	Arg	Ile	Ala	Arg	Asp	Ser	Ser	Tyr	Glu	Gln	Glu	Gly	Lys		
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gtc	caa	ttt	gta	att	gat	gct	gta	tat	tcc	atg	gct	tac	gcc	ctg	cac	1308	
Val	Gln	Phe	Val	Ile	Asp	Ala	Val	Tyr	Ser	Met	Ala	Tyr	Ala	Leu	His		

405										410					415					
aat	atg	cac	aaa	gat	ctc	tgc	cct	gga	tac	att	ggc	ctt	tgt	cca	cga	1356				
Asn	Met	His	Lys	Asp	Leu	Cys	Pro	Gly	Tyr	Ile	Gly	Leu	Cys	Pro	Arg					
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atg	agt	acc	att	gat	ggg	aaa	gag	cta	ctt	ggt	tat	att	cgg	gct	gta	1404				
Met	Ser	Thr	Ile	Asp	Gly	Lys	Glu	Leu	Leu	Gly	Tyr	Ile	Arg	Ala	Val					
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Asp	Ala	Pro	Gly	Arg	Tyr	Asp	Ile	Phe	Gln	Tyr	Gln	Ile	Thr	Asn	Lys					
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agc	aca	gag	tac	aaa	gtc	atc	ggc	cac	tgg	acc	aat	cag	ctt	cat	cta	1548				
Ser	Thr	Glu	Tyr	Lys	Val	Ile	Gly	His	Trp	Thr	Asn	Gln	Leu	His	Leu					
		485					490						495							
aaa	gtg	gaa	gac	atg	cag	tgg	gct	cat	aga	gaa	cat	act	cac	ccg	gcg	1596				
Lys	Val	Glu	Asp	Met	Gln	Trp	Ala	His	Arg	Glu	His	Thr	His	Pro	Ala					
	500						505					510								
tct	gtc	tgc	agc	ctg	ccg	tgt	aag	cca	ggg	gag	agg	aag	aaa	acg	gtg	1644				
Ser	Val	Cys	Ser	Leu	Pro	Cys	Lys	Pro	Gly	Glu	Arg	Lys	Lys	Thr	Val					
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Tyr	Gln	Val	Asp	Glu	Leu	Ser	Cys	Glu	Leu	Cys	Pro	Leu	Asp	Gln	Arg					
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Gly	Ile	Ile	Ala	Thr	Thr	Phe	Val	Ile	Val	Thr	Phe	Val	Arg	Tyr	Asn					
	595					600					605									
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Gly	Met	Cys	Phe	Ser	Tyr	Ala	Ala	Leu	Leu	Thr	Lys	Thr	Asn	Arg	Ile			
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cac	cga	ata	ttt	gag	cag	ggg	aag	aaa	tct	gtc	aca	gcg	ccc	aag	ttc	2124		
His	Arg	Ile	Phe	Glu	Gln	Gly	Lys	Lys	Ser	Val	Thr	Ala	Pro	Lys	Phe			
	675					680					685							
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Ile	Ser	Pro	Ala	Ser	Gln	Leu	Val	Ile	Thr	Phe	Ser	Leu	Ile	Ser	Val			
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Gln	Leu	Leu	Gly	Val	Phe	Val	Trp	Phe	Val	Val	Asp	Pro	Pro	His	Ile			
			710						715					720				
atc	att	gac	tat	gga	gag	cag	cgg	aca	cta	gat	cca	gag	aag	gcc	agg	2268		
Ile	Ile	Asp	Tyr	Gly	Glu	Gln	Arg	Thr	Leu	Asp	Pro	Glu	Lys	Ala	Arg			
		725						730					735					
gga	gtg	ctc	aag	tgt	gac	att	tct	gat	ctc	tca	ctc	att	tgt	tca	ctt	2316		
Gly	Val	Leu	Lys	Cys	Asp	Ile	Ser	Asp	Leu	Ser	Leu	Ile	Cys	Ser	Leu			
	740						745					750						
gga	tac	agt	atc	ctc	ttg	atg	gtc	act	tgt	act	gtt	tat	gcc	aat	aaa	2364		
Gly	Tyr	Ser	Ile	Leu	Leu	Met	Val	Thr	Cys	Thr	Val	Tyr	Ala	Asn	Lys			
	755					760					765							
acg	aga	ggg	gtc	cca	gag	act	ttc	aat	gaa	gcc	aaa	cct	att	gga	ttt	2412		
Thr	Arg	Gly	Val	Pro	Glu	Thr	Phe	Asn	Glu	Ala	Lys	Pro	Ile	Gly	Phe			
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acc	atg	tat	acc	acc	tgc	atc	att	tgg	tta	gct	ttc	atc	ccc	atc	ttt	2460		
Thr	Met	Tyr	Thr	Thr	Cys	Ile	Ile	Trp	Leu	Ala	Phe	Ile	Pro	Ile	Phe			
				790					795					800				
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Phe	Gly	Thr	Ala	Gln	Ser	Ala	Glu	Lys	Met	Tyr	Ile	Gln	Thr	Thr	Thr			
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ctt	act	gtc	tcc	atg	agt	tta	agt	gct	tca	gta	tct	ctg	ggc	atg	ctc	2556		
Leu	Thr	Val	Ser	Met	Ser	Leu	Ser	Ala	Ser	Val	Ser	Leu	Gly	Met	Leu			
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tat	atg	ccc	aag	gtt	tat	att	ata	att	ttt	cat	cca	gaa	cag	aat	gtt	2604		
Tyr	Met	Pro	Lys	Val	Tyr	Ile	Ile	Ile	Phe	His	Pro	Glu	Gln	Asn	Val			
	835					840					845							
caa	aaa	cgc	aag	agg	agc	ttc	aag	gct	gtg	gtg	aca	gct	gcc	acc	atg	2652		
Gln	Lys	Arg	Lys	Arg	Ser	Phe	Lys	Ala	Val	Val	Thr	Ala	Ala	Thr	Met			
850					855					860					865			
caa	agc	aaa	ctg	atc	caa	aaa	gga	aat	gac	aga	cca	aat	ggc	gag	gtg	2700		
Gln	Ser	Lys	Leu	Ile	Gln	Lys	Gly	Asn	Asp	Arg	Pro	Asn	Gly	Glu	Val			
				870					875					880				
aaa	agt	gaa	ctc	tgt	gag	agt	ctt	gaa	acc	aac	act	tcc	tct	acc	aag	2748		
Lys	Ser	Glu	Leu	Cys	Glu	Ser	Leu	Glu	Thr	Asn	Thr	Ser	Ser	Thr	Lys			
			885					890					895					

aca aca tat atc agt tac agc aat cat tca atc tga aacagggaaa 2794  
 Thr Thr Tyr Ile Ser Tyr Ser Asn His Ser Ile \*  
 900 905

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 Ser Gln Glu Tyr Ala His Ser Ile Arg Val Asp Gly Asp Ile Ile Leu  
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 Gly Gly Leu Phe Pro Val His Ala Lys Gly Glu Arg Gly Val Pro Cys  
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 Gly Glu Leu Lys Lys Glu Lys Gly Ile His Arg Leu Glu Ala Met Leu  
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 Tyr Ala Ile Asp Gln Ile Asn Lys Asp Pro Asp Leu Leu Ser Asn Ile  
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 Thr Leu Gly Val Arg Ile Leu Asp Thr Cys Ser Arg Asp Thr Tyr Ala  
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 Leu Glu Gln Ser Leu Thr Phe Val Gln Ala Leu Ile Glu Lys Asp Ala  
 115 120 125  
 Ser Asp Val Lys Cys Ala Asn Gly Asp Pro Pro Ile Phe Thr Lys Pro  
 130 135 140  
 Asp Lys Ile Ser Gly Val Ile Gly Ala Ala Ala Ser Ser Val Ser Ile  
 145 150 155 160  
 Met Val Ala Asn Ile Leu Arg Leu Phe Lys Ile Pro Gln Ile Ser Tyr  
 165 170 175  
 Ala Ser Thr Ala Pro Glu Leu Ser Asp Asn Thr Arg Tyr Asp Phe Phe  
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 Ser Arg Val Val Pro Pro Asp Ser Tyr Gln Ala Gln Ala Met Val Asp  
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 Ile Val Thr Ala Leu Gly Trp Asn Tyr Val Ser Thr Leu Ala Ser Glu  
 210 215 220  
 Gly Asn Tyr Gly Glu Ser Gly Val Glu Ala Phe Thr Gln Ile Ser Arg  
 225 230 235 240  
 Glu Ile Gly Gly Val Cys Ile Ala Gln Ser Gln Lys Ile Pro Arg Glu  
 245 250 255  
 Pro Arg Pro Gly Glu Phe Glu Lys Ile Ile Lys Arg Leu Leu Glu Thr  
 260 265 270  
 Pro Asn Ala Arg Ala Val Ile Met Phe Ala Asn Glu Asp Asp Ile Arg  
 275 280 285  
 Arg Ile Leu Glu Ala Ala Lys Lys Leu Asn Gln Ser Gly His Phe Leu  
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 Trp Ile Gly Ser Asp Ser Trp Gly Ser Lys Ile Ala Pro Val Tyr Gln  
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Gln	Glu	Glu	Ile	Ala	Glu	Gly	Ala	Val	Thr	Ile	Leu	Pro	Lys	Arg	Ala
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Ser	Ile	Asp	Gly	Phe	Asp	Arg	Tyr	Phe	Arg	Ser	Arg	Thr	Leu	Ala	Asn
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Asn	Arg	Arg	Asn	Val	Trp	Phe	Ala	Glu	Phe	Trp	Glu	Glu	Asn	Phe	Gly
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Cys	Lys	Leu	Gly	Ser	His	Gly	Lys	Arg	Asn	Ser	His	Ile	Lys	Lys	Cys
	370					375					380				
Thr	Gly	Leu	Glu	Arg	Ile	Ala	Arg	Asp	Ser	Ser	Tyr	Glu	Gln	Glu	Gly
385					390						395				400
Lys	Val	Gln	Phe	Val	Ile	Asp	Ala	Val	Tyr	Ser	Met	Ala	Tyr	Ala	Leu
				405					410					415	
His	Asn	Met	His	Lys	Asp	Leu	Cys	Pro	Gly	Tyr	Ile	Gly	Leu	Cys	Pro
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Arg	Met	Ser	Thr	Ile	Asp	Gly	Lys	Glu	Leu	Leu	Gly	Tyr	Ile	Arg	Ala
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Val	Asn	Phe	Asn	Gly	Ser	Ala	Gly	Thr	Pro	Val	Thr	Phe	Asn	Glu	Asn
	450					455					460				
Gly	Asp	Ala	Pro	Gly	Arg	Tyr	Asp	Ile	Phe	Gln	Tyr	Gln	Ile	Thr	Asn
465					470					475					480
Lys	Ser	Thr	Glu	Tyr	Lys	Val	Ile	Gly	His	Trp	Thr	Asn	Gln	Leu	His
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Leu	Lys	Val	Glu	Asp	Met	Gln	Trp	Ala	His	Arg	Glu	His	Thr	His	Pro
			500					505					510		
Ala	Ser	Val	Cys	Ser	Leu	Pro	Cys	Lys	Pro	Gly	Glu	Arg	Lys	Lys	Thr
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Val	Lys	Gly	Val	Pro	Cys	Cys	Trp	His	Cys	Glu	Arg	Cys	Glu	Gly	Tyr
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Arg	Pro	Asn	Met	Asn	Arg	Thr	Gly	Cys	Gln	Leu	Ile	Pro	Ile	Ile	Lys
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Leu	Glu	Trp	His	Ser	Pro	Trp	Ala	Val	Val	Pro	Val	Phe	Val	Ala	Ile
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Leu	Gly	Ile	Ile	Ala	Thr	Thr	Phe	Val	Ile	Val	Thr	Phe	Val	Arg	Tyr
		595					600					605			
Asn	Asp	Thr	Pro	Ile	Val	Arg	Ala	Ser	Gly	Arg	Glu	Leu	Ser	Tyr	Val
	610					615					620				
Leu	Leu	Thr	Gly	Ile	Phe	Leu	Cys	Tyr	Ser	Ile	Thr	Phe	Leu	Met	Ile
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Ala	Ala	Pro	Asp	Thr	Ile	Ile	Cys	Ser	Phe	Arg	Arg	Val	Phe	Leu	Gly
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Leu	Gly	Met	Cys	Phe	Ser	Tyr	Ala	Ala	Leu	Leu	Thr	Lys	Thr	Asn	Arg
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Phe	Ile	Ser	Pro	Ala	Ser	Gln	Leu	Val	Ile	Thr	Phe	Ser	Leu	Ile	Ser
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Val	Gln	Leu	Leu	Gly	Val	Phe	Val	Trp	Phe	Val	Val	Asp	Pro	Pro	His
705					710					715					720
Ile	Ile	Ile	Asp	Tyr	Gly	Glu	Gln	Arg	Thr	Leu	Asp	Pro	Glu	Lys	Ala
				725					730					735	
Arg	Gly	Val	Leu	Lys	Cys	Asp	Ile	Ser	Asp	Leu	Ser	Leu	Ile	Cys	Ser
			740					745					750		
Leu	Gly	Tyr	Ser	Ile	Leu	Leu	Met	Val	Thr	Cys	Thr	Val	Tyr	Ala	Asn
		755					760					765			
Lys	Thr	Arg	Gly	Val	Pro	Glu	Thr	Phe	Asn	Glu	Ala	Lys	Pro	Ile	Gly
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Phe	Thr	Met	Tyr	Thr	Thr	Cys	Ile	Ile	Trp	Leu	Ala	Phe	Ile	Pro	Ile
785					790					795					800
Phe	Phe	Gly	Thr	Ala	Gln	Ser	Ala	Glu	Lys	Met	Tyr	Ile	Gln	Thr	Thr

				805					810					815			
Thr	Leu	Thr	Val	Ser	Met	Ser	Leu	Ser	Ala	Ser	Val	Ser	Leu	Gly	Met		
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Leu	Tyr	Met	Pro	Lys	Val	Tyr	Ile	Ile	Ile	Phe	His	Pro	Glu	Gln	Asn		
		835					840					845					
Val	Gln	Lys	Arg	Lys	Arg	Ser	Phe	Lys	Ala	Val	Val	Thr	Ala	Ala	Thr		
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Met	Gln	Ser	Lys	Leu	Ile	Gln	Lys	Gly	Asn	Asp	Arg	Pro	Asn	Gly	Glu		
865				870					875					880			
Val	Lys	Ser	Glu	Leu	Cys	Glu	Ser	Leu	Glu	Thr	Asn	Thr	Ser	Ser	Thr		
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Lys	Thr	Thr	Tyr	Ile	Ser	Tyr	Ser	Asn	His	Ser	Ile						
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 aagaggtacc ccagacaccg gccaccctct tccagcccct gcggccagtg caaggaggca 180  
 ccaatgctct gaggtgtctg cgtggtgcag cgtcgagcat cctcgccgag tccttctgct 240  
 gcctgtcccg cctcaccctg ctccatcaca ccagctggcc ctctttgctt ccttttccca 300  
 gaatcggttaa gccccgactc ccactagcac ctcgtagcaa cctcgcccca ccccatcctc 360  
 ctgccttccc gcgctccggt gtcccccgct gcc atg agc tcc ccc atc agc aag 414  
 Met Ser Ser Pro Ile Ser Lys  
 1 5

agc cgc tcg ctt gcc gcc ttc ctg cag cag ctg cgc agt ccg agg cag 462  
 Ser Arg Ser Leu Ala Ala Phe Leu Gln Gln Leu Arg Ser Pro Arg Gln  
 10 15 20

ccc ccg aga ctg gtg aca tct acg gcg tac acg tcc cct cag ccg cga 510  
 Pro Pro Arg Leu Val Thr Ser Thr Ala Tyr Thr Ser Pro Gln Pro Arg  
 25 30 35

gag gtg cca gtc tgc ccg ctg aca gct ggt ggc gag act cag aac gcg 558  
 Glu Val Pro Val Cys Pro Leu Thr Ala Gly Glu Thr Gln Asn Ala  
 40 45 50 55

gcc gcc ctg ccg ggc ccc acc agc tgg cca ctg ctg gcg agc ctg ctg 606  
 Ala Ala Leu Pro Gly Pro Thr Ser Trp Pro Leu Leu Ala Ser Leu Leu  
 60 65 70

cag att ctc tgg aaa ggg ggt ctc aag aaa cag cac gac acc ctg gtg 654  
 Gln Ile Leu Trp Lys Gly Gly Leu Lys Lys Gln His Asp Thr Leu Val  
 75 80 85

gag tac cac aag aag tat ggc aag att ttc cgc atg aag ttg ggt tcc 702  
 Glu Tyr His Lys Lys Tyr Gly Lys Ile Phe Arg Met Lys Leu Gly Ser  
 90 95 100

ttt gag tcg gtg cac ctg ggc tcg cca tgc ctg ctg gaa gcg ctg tac 750



Phe	Glu	Ser	Val	His	Leu	Gly	Ser	Pro	Cys	Leu	Leu	Glu	Ala	Leu	Tyr		
105						110					115						
cgc	acc	gag	agc	gta	ccc	cag	cgg	ctg	gag	atc	aaa	ccg	tgg	aag	gcc	798	
Arg	Thr	Glu	Ser	Val	Pro	Gln	Arg	Leu	Glu	Ile	Lys	Pro	Trp	Lys	Ala		
120					125				130						135		
tat	cgc	gac	tac	cgc	aaa	gaa	ggc	tac	ggg	ctg	ctg	atc	ctg	gaa	ggg	846	
Tyr	Arg	Asp	Tyr	Arg	Lys	Glu	Gly	Tyr	Gly	Leu	Leu	Ile	Leu	Glu	Gly		
				140					145					150			
gaa	gac	tgg	cag	cgg	gtc	cgg	agt	gcc	ttt	caa	aag	aaa	cta	atg	aaa	894	
Glu	Asp	Trp	Gln	Arg	Val	Arg	Ser	Ala	Phe	Gln	Lys	Lys	Leu	Met	Lys		
			155					160					165				
cca	ggg	gaa	gtg	atg	aag	ctg	gac	aac	aaa	atc	aat	gag	gtc	ttg	gcc	942	
Pro	Gly	Glu	Val	Met	Lys	Leu	Asp	Asn	Lys	Ile	Asn	Glu	Val	Leu	Ala		
		170					175					180					
gat	ttt	atg	ggc	aga	ata	gat	gag	ctc	tgt	gat	gaa	aga	ggc	cac	gtc	990	
Asp	Phe	Met	Gly	Arg	Ile	Asp	Glu	Leu	Cys	Asp	Glu	Arg	Gly	His	Val		
	185					190					195						
gaa	gac	ttg	tac	agc	gaa	ctg	aac	aaa	tgg	tcg	ttt	gaa	agt	atc	tgc	1038	
Glu	Asp	Leu	Tyr	Ser	Glu	Leu	Asn	Lys	Trp	Ser	Phe	Glu	Ser	Ile	Cys		
200					205					210					215		
ctc	gtg	ttg	tat	gag	aag	aga	ttt	ggg	ctt	ctc	cag	aag	aat	gca	ggg	1086	
Leu	Val	Leu	Tyr	Glu	Lys	Arg	Phe	Gly	Leu	Leu	Gln	Lys	Asn	Ala	Gly		
				220					225					230			
gat	gaa	gct	gtg	aac	ttc	atc	atg	gcc	atc	aaa	aca	atg	atg	agc	acg	1134	
Asp	Glu	Ala	Val	Asn	Phe	Ile	Met	Ala	Ile	Lys	Thr	Met	Met	Ser	Thr		
			235					240					245				
ttt	ggg	agg	atg	atg	gtc	act	cca	gtc	gag	ctg	cac	aag	agc	ctc	aac	1182	
Phe	Gly	Arg	Met	Met	Val	Thr	Pro	Val	Glu	Leu	His	Lys	Ser	Leu	Asn		
		250					255					260					
acc	aag	gtc	tgg	cag	gga	cac	act	ctg	gcc	tgg	gac	acc	att	ttc	aaa	1230	
Thr	Lys	Val	Trp	Gln	Gly	His	Thr	Leu	Ala	Trp	Asp	Thr	Ile	Phe	Lys		
	265					270					275						
tca	gtc	aaa	gct	tgt	atc	gac	aac	cgg	tta	gag	aag	tat	tct	cag	cag	1278	
Ser	Val	Lys	Ala	Cys	Ile	Asp	Asn	Arg	Leu	Glu	Lys	Tyr	Ser	Gln	Gln		
280					285					290					295		
cct	agt	gca	gat	ttc	ctt	tgt	gac	att	tat	cac	cag	aat	cgg	ctt	tca	1326	
Pro	Ser	Ala	Asp	Phe	Leu	Cys	Asp	Ile	Tyr	His	Gln	Asn	Arg	Leu	Ser		
				300					305					310			
aag	aaa	gaa	ttg	tat	gct	gct	gtc	aca	gag	ctc	cag	ctg	gct	gcg	gtg	1374	
Lys	Lys	Glu	Leu	Tyr	Ala	Ala	Val	Thr	Glu	Leu	Gln	Leu	Ala	Ala	Val		
			315					320					325				
gaa	acg	aca	gca	aac	agt	cta	atg	tgg	att	ctc	tac	aat	tta	tcc	cgt	1422	
Glu	Thr	Thr	Ala	Asn	Ser	Leu	Met	Trp	Ile	Leu	Tyr	Asn	Leu	Ser	Arg		
		330					335					340					
aat	ccc	caa	gtg	caa	caa	aag	ctt	ctt	aag	gaa	att	caa	agt	gta	tta	1470	
Asn	Pro	Gln	Val	Gln	Gln	Lys	Leu	Leu	Lys	Glu	Ile	Gln	Ser	Val	Leu		

345	350	355	
cct gag aat cag agg cca cgg gag gaa gat ttg agg aat atg ccg tat			1518
Pro Glu Asn Gln Arg Pro Arg Glu Glu Asp Leu Arg Asn Met Pro Tyr			
360	365	370	375
tta aaa gcc tgt ctg aaa gaa tct atg agg ctt acc ccg ggt gta cca			1566
Leu Lys Ala Cys Leu Lys Glu Ser Met Arg Leu Thr Pro Gly Val Pro			
	380	385	390
ttt aca act cgg act ctt gac aag gca aca gtt ctg ggt gaa tat gct			1614
Phe Thr Thr Arg Thr Leu Asp Lys Ala Thr Val Leu Gly Glu Tyr Ala			
	395	400	405
tta ccc aaa gga aca gtg ctc atg cta aat acc cag gtg ttg gga tcc			1662
Leu Pro Lys Gly Thr Val Leu Met Leu Asn Thr Gln Val Leu Gly Ser			
	410	415	420
agt gaa gac aat ttt gaa gat tca agt cag ttt aga cct gaa cgt tgg			1710
Ser Glu Asp Asn Phe Glu Asp Ser Ser Gln Phe Arg Pro Glu Arg Trp			
	425	430	435
ctt cag gag aag gaa aaa att aat cct ttt gcg cat ctt cca ttt ggc			1758
Leu Gln Glu Lys Glu Lys Ile Asn Pro Phe Ala His Leu Pro Phe Gly			
	440	445	450
gtt gga aaa aga atg tgc att ggt cgc cga tta gca gag ctt caa ctg			1806
Val Gly Lys Arg Met Cys Ile Gly Arg Arg Leu Ala Glu Leu Gln Leu			
	460	465	470
cat ttg gct ctt tgt tgg att gtc cgc aaa tac gac atc cag gcc aca			1854
His Leu Ala Leu Cys Trp Ile Val Arg Lys Tyr Asp Ile Gln Ala Thr			
	475	480	485
gac aat gag cct gtt gag atg cta cac tca ggc acc ctg gtg ccc agc			1902
Asp Asn Glu Pro Val Glu Met Leu His Ser Gly Thr Leu Val Pro Ser			
	490	495	500
cgg gaa ctc ccc atc gcg ttt tgc cag cga taa tacgcctcag atgggtggtat			1955
Arg Glu Leu Pro Ile Ala Phe Cys Gln Arg *			
505	510		
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cagggttcac tgctggttta cacttcacct gtgtcagcac catcttcagg tgcttagaat			2075
ggcctgggag cctgttctgt cttgcatctt ccattgacatg aaagggaggc tggcacttgt			2135
cagtcaggta gaggttacaa accgtttcag gccctgctac cacattcact gtttgaatct			2195
ttaattccca agaataagtt tacatttcac aatgaatgac ctacaacagc taaattttct			2255
ggggctggga gtaatactga caatccattt actgtagctc tgcttaaatgt actacttagg			2315
aaaatgtccc tgcttaataa tgtaagccaa gctaaatgat ggttaaagtt atcaggcctc			2375
ccatgaaatt gcgttcttcc tgcattgaaa taaaaacatt attgggaaac tagagaacac			2435
ctctattttt aaaaggactt taacgaagtc aaacaacttc taagactagt gattcactgg			2495
ggcattattt gtttagaggac cttaaaattg tttatttttt aaatgtgatt cttttatggc			2555
attagggtaa agatgaagca ataattttta aattgtgtat gtgcatatga agcacagaca			2615
tgcatgtgtg tgtgtgtctg tgtgtgtgtg tccgtgtatg tgtgtgtggg ttctaattgt			2675
aatttgccctc agtcattttt ttaatatttg cagtacttga tttaggatct gtggtgcagg			2735
gcattgtttc aagtttagtc acagcttaaa aacattcagt gtgactttta tattataaaa			2795
tgattttcca tgccataatt tttctgtcta ttaaatggga caagtgtaaa gcatgcaaaa			2855
gtttagagac tgttatataa catttgtttt gtgatttgaa ctccataggaa aaatatgatt			2915
tcataaatgt aaaatgcaca gaaatgcatg caatacttat aagacttaaa aattgtgttt			2975
acagatgggt tatttgtgca tatttttact actgcttttc ctaaatgcat actgtatata			3035
attctgtgta tttgataaat atttcttcct acattatatt tttagaatat ttcagaaata			3095

tacatttatg tcttttatatt gtaataaata tgtacatatc taggtatatg ctttctctct 3155  
gctgtgaaat tatttttaga attataattc acgtcttgtc atatttcacac tgtatacctt 3215  
caaattctct gaaagtaaaa ataaaagttt ttaaattatt 3254

<210> 82  
<211> 513  
<212> PRT  
<213> Homo sapiens

<400> 82  
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Gln Leu Arg Ser Pro Arg Gln Pro Pro Arg Leu Val Thr Ser Thr Ala  
20 25 30  
Tyr Thr Ser Pro Gln Pro Arg Glu Val Pro Val Cys Pro Leu Thr Ala  
35 40 45  
Gly Gly Glu Thr Gln Asn Ala Ala Ala Leu Pro Gly Pro Thr Ser Trp  
50 55 60  
Pro Leu Leu Ala Ser Leu Leu Gln Ile Leu Trp Lys Gly Gly Leu Lys  
65 70 75 80  
Lys Gln His Asp Thr Leu Val Glu Tyr His Lys Lys Tyr Gly Lys Ile  
85 90 95  
Phe Arg Met Lys Leu Gly Ser Phe Glu Ser Val His Leu Gly Ser Pro  
100 105 110  
Cys Leu Leu Glu Ala Leu Tyr Arg Thr Glu Ser Val Pro Gln Arg Leu  
115 120 125  
Glu Ile Lys Pro Trp Lys Ala Tyr Arg Asp Tyr Arg Lys Glu Gly Tyr  
130 135 140  
Gly Leu Leu Ile Leu Glu Gly Glu Asp Trp Gln Arg Val Arg Ser Ala  
145 150 155 160  
Phe Gln Lys Lys Leu Met Lys Pro Gly Glu Val Met Lys Leu Asp Asn  
165 170 175  
Lys Ile Asn Glu Val Leu Ala Asp Phe Met Gly Arg Ile Asp Glu Leu  
180 185 190  
Cys Asp Glu Arg Gly His Val Glu Asp Leu Tyr Ser Glu Leu Asn Lys  
195 200 205  
Trp Ser Phe Glu Ser Ile Cys Leu Val Leu Tyr Glu Lys Arg Phe Gly  
210 215 220  
Leu Leu Gln Lys Asn Ala Gly Asp Glu Ala Val Asn Phe Ile Met Ala  
225 230 235 240  
Ile Lys Thr Met Met Ser Thr Phe Gly Arg Met Met Val Thr Pro Val  
245 250 255  
Glu Leu His Lys Ser Leu Asn Thr Lys Val Trp Gln Gly His Thr Leu  
260 265 270  
Ala Trp Asp Thr Ile Phe Lys Ser Val Lys Ala Cys Ile Asp Asn Arg  
275 280 285  
Leu Glu Lys Tyr Ser Gln Gln Pro Ser Ala Asp Phe Leu Cys Asp Ile  
290 295 300  
Tyr His Gln Asn Arg Leu Ser Lys Lys Glu Leu Tyr Ala Ala Val Thr  
305 310 315 320  
Glu Leu Gln Leu Ala Ala Val Glu Thr Thr Ala Asn Ser Leu Met Trp  
325 330 335  
Ile Leu Tyr Asn Leu Ser Arg Asn Pro Gln Val Gln Gln Lys Leu Leu  
340 345 350  
Lys Glu Ile Gln Ser Val Leu Pro Glu Asn Gln Arg Pro Arg Glu Glu  
355 360 365  
Asp Leu Arg Asn Met Pro Tyr Leu Lys Ala Cys Leu Lys Glu Ser Met  
370 375 380  
Arg Leu Thr Pro Gly Val Pro Phe Thr Thr Arg Thr Leu Asp Lys Ala  
385 390 395 400  
Thr Val Leu Gly Glu Tyr Ala Leu Pro Lys Gly Thr Val Leu Met Leu

				405					410				415				
Asn	Thr	Gln	Val	Leu	Gly	Ser	Ser	Glu	Asp	Asn	Phe	Glu	Asp	Ser	Ser		
			420					425					430				
Gln	Phe	Arg	Pro	Glu	Arg	Trp	Leu	Gln	Glu	Lys	Glu	Lys	Ile	Asn	Pro		
		435					440					445					
Phe	Ala	His	Leu	Pro	Phe	Gly	Val	Gly	Lys	Arg	Met	Cys	Ile	Gly	Arg		
	450					455					460						
Arg	Leu	Ala	Glu	Leu	Gln	Leu	His	Leu	Ala	Leu	Cys	Trp	Ile	Val	Arg		
465					470					475					480		
Lys	Tyr	Asp	Ile	Gln	Ala	Thr	Asp	Asn	Glu	Pro	Val	Glu	Met	Leu	His		
			485					490						495			
Ser	Gly	Thr	Leu	Val	Pro	Ser	Arg	Glu	Leu	Pro	Ile	Ala	Phe	Cys	Gln		
			500					505					510				
Arg																	

<210> 83  
 <211> 1662  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (1)...(1662)

<400> 83																
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Met	Lys	Leu	Gly	Ser	Ser	Arg	Ala	Gly	Pro	Gly	Arg	Gly	Ser	Ala	Gly	
1				5					10					15		
ctc ctg cct ggc gtc cac gag ctg ccc atg ggc atc cct gcc ccc tgg																96
Leu	Leu	Pro	Gly	Val	His	Glu	Leu	Pro	Met	Gly	Ile	Pro	Ala	Pro	Trp	
			20					25					30			
ggg acc agt cct ctc tcc ttc cac agg aag tgc tct ctc tgg gcc cct																144
Gly	Thr	Ser	Pro	Leu	Ser	Phe	His	Arg	Lys	Cys	Ser	Leu	Trp	Ala	Pro	
		35				40						45				
ggg agg ccc ttc ctc act ctg gtc ctg ctg gtt tcc atc aag caa gtt																192
Gly	Arg	Pro	Phe	Leu	Thr	Leu	Val	Leu	Leu	Val	Ser	Ile	Lys	Gln	Val	
	50					55				60						
aca gga tcc ctc ctt gag gaa acg act cgg aag tgg gct cag tac aaa																240
Thr	Gly	Ser	Leu	Leu	Glu	Glu	Thr	Thr	Arg	Lys	Trp	Ala	Gln	Tyr	Lys	
65				70					75					80		
cag gca tgt ctg aga gac tta ctc aag gaa cct tct ggc ata ttt tgt																288
Gln	Ala	Cys	Leu	Arg	Asp	Leu	Leu	Lys	Glu	Pro	Ser	Gly	Ile	Phe	Cys	
			85					90					95			
aac ggg aca ttt gat cag tac gtg tgt tgg cct cat tct tct cct gga																336
Asn	Gly	Thr	Phe	Asp	Gln	Tyr	Val	Cys	Trp	Pro	His	Ser	Ser	Pro	Gly	
		100					105						110			
aat gtc tct gta ccc tgc cct tca tac tta cct tgg tgg agt gaa gag																384
Asn	Val	Ser	Val	Pro	Cys	Pro	Ser	Tyr	Leu	Pro	Trp	Trp	Ser	Glu	Glu	
		115					120					125				
agc tca gga agg gcc tac aga cac tgc ttg gct cag ggg act tgg cag																432

Ser	Ser	Gly	Arg	Ala	Tyr	Arg	His	Cys	Leu	Ala	Gln	Gly	Thr	Trp	Gln		
130						135					140						
acg	ata	gag	aac	gcc	acg	gat	att	tgg	cag	gat	gac	tcc	gaa	tgc	tcc	480	
Thr	Ile	Glu	Asn	Ala	Thr	Asp	Ile	Trp	Gln	Asp	Asp	Ser	Glu	Cys	Ser		
145					150				155						160		
gag	aac	cac	agc	ttc	aag	caa	aac	gtg	gac	cgt	tat	gcc	ttg	ctg	tca	528	
Glu	Asn	His	Ser	Phe	Lys	Gln	Asn	Val	Asp	Arg	Tyr	Ala	Leu	Leu	Ser		
				165				170						175			
acc	ttg	cag	ctg	atg	tac	acc	gtg	gga	tac	tcc	ttc	tct	ctt	atc	tcc	576	
Thr	Leu	Gln	Leu	Met	Tyr	Thr	Val	Gly	Tyr	Ser	Phe	Ser	Leu	Ile	Ser		
			180					185					190				
ctc	ttc	ctg	gct	ctc	acc	ctc	ctc	ttg	ttt	ctt	cga	aaa	ctc	cac	tgc	624	
Leu	Phe	Leu	Ala	Leu	Thr	Leu	Leu	Leu	Phe	Leu	Arg	Lys	Leu	His	Cys		
		195					200					205					
acg	cgc	aac	tac	atc	cac	atg	aac	ttg	ttt	gct	tct	ttc	atc	ctg	aga	672	
Thr	Arg	Asn	Tyr	Ile	His	Met	Asn	Leu	Phe	Ala	Ser	Phe	Ile	Leu	Arg		
	210					215					220						
acc	ctg	gct	gta	ctg	gtg	aag	gac	gtc	gtc	ttc	tac	aac	tct	tac	tcc	720	
Thr	Leu	Ala	Val	Leu	Val	Lys	Asp	Val	Val	Phe	Tyr	Asn	Ser	Tyr	Ser		
	225				230					235					240		
aag	agg	cct	gac	aat	gag	aat	ggg	tgg	atg	tcc	tac	ctg	tca	gag	atg	768	
Lys	Arg	Pro	Asp	Asn	Glu	Asn	Gly	Trp	Met	Ser	Tyr	Leu	Ser	Glu	Met		
				245				250						255			
tcc	acc	tcc	tgc	cgc	tca	gtc	cag	gtt	ctc	ttg	cat	tac	ttt	gtg	ggt	816	
Ser	Thr	Ser	Cys	Arg	Ser	Val	Gln	Val	Leu	Leu	His	Tyr	Phe	Val	Gly		
			260					265					270				
gcc	aat	tac	tta	tgg	ctg	ctg	gtt	gaa	ggc	ctc	tac	ctc	cac	acg	ctg	864	
Ala	Asn	Tyr	Leu	Trp	Leu	Leu	Val	Glu	Gly	Leu	Tyr	Leu	His	Thr	Leu		
		275					280					285					
ctg	gag	ccc	aca	gtg	ctt	cct	gag	agg	cgg	ctg	tgg	ccc	aga	tac	ctg	912	
Leu	Glu	Pro	Thr	Val	Leu	Pro	Glu	Arg	Arg	Leu	Trp	Pro	Arg	Tyr	Leu		
	290					295					300						
ctg	ttg	ggt	tgg	gcc	ttc	cct	gtg	cta	ttt	gtt	gta	ccc	tgg	ggt	ttc	960	
Leu	Leu	Gly	Trp	Ala	Phe	Pro	Val	Leu	Phe	Val	Val	Pro	Trp	Gly	Phe		
	305				310					315					320		
gcc	cgt	gca	cac	ctg	gag	aac	aca	ggg	tgc	tgg	aca	aca	aat	ggg	aat	1008	
Ala	Arg	Ala	His	Leu	Glu	Asn	Thr	Gly	Cys	Trp	Thr	Thr	Asn	Gly	Asn		
				325					330					335			
aag	aaa	atc	tgg	tgg	atc	atc	cga	gga	ccc	atg	atg	ctc	tgt	gta	aca	1056	
Lys	Lys	Ile	Trp	Trp	Ile	Ile	Arg	Gly	Pro	Met	Met	Leu	Cys	Val	Thr		
			340					345					350				
gtc	aat	ttc	ttc	atc	ttc	ctg	aaa	att	ctc	aag	ctt	ctc	att	tct	aag	1104	
Val	Asn	Phe	Phe	Ile	Phe	Leu	Lys	Ile	Leu	Lys	Leu	Leu	Ile	Ser	Lys		
		355					360					365					
ctc	aaa	gct	cat	caa	atg	tgc	ttc	aga	gat	tat	aaa	tac	aga	ttg	gca	1152	
Leu	Lys	Ala	His	Gln	Met	Cys	Phe	Arg	Asp	Tyr	Lys	Tyr	Arg	Leu	Ala		

370	375	380	
aaa tca aca ctg gtc ctc att cct tta ttg ggc gtt cat gag atc ctc			1200
Lys Ser Thr Leu Val Leu Ile Pro Leu Leu Gly Val His Glu Ile Leu			
385	390	395	400
ttc tct ttc atc act gat gat caa gtt gaa gga ttt gca aaa ctt ata			1248
Phe Ser Phe Ile Thr Asp Asp Gln Val Glu Gly Phe Ala Lys Leu Ile			
	405	410	415
cga ctt ttc att cag ttg aca ctg agc tcc ttt cat ggg ttc ctg gtg			1296
Arg Leu Phe Ile Gln Leu Thr Leu Ser Ser Phe His Gly Phe Leu Val			
	420	425	430
gcc ttg cag tat ggt ttt gcc aat gga gaa gtg aag gct gag ctg cgg			1344
Ala Leu Gln Tyr Gly Phe Ala Asn Gly Glu Val Lys Ala Glu Leu Arg			
	435	440	445
aaa tac tgg gtc cgc ttc ttg cta gcc cgc cac tca ggc tgc aga gcc			1392
Lys Tyr Trp Val Arg Phe Leu Leu Ala Arg His Ser Gly Cys Arg Ala			
	450	455	460
tgt gtc ctg ggg aag gac ttc cgg ttc cta gga aaa tgt ccc aag aag			1440
Cys Val Leu Gly Lys Asp Phe Arg Phe Leu Gly Lys Cys Pro Lys Lys			
	465	470	475
ctc tcg gaa gga gat ggc gct gag aag ctt cgg aag ctg cag ccc tca			1488
Leu Ser Glu Gly Asp Gly Ala Glu Lys Leu Arg Lys Leu Gln Pro Ser			
	485	490	495
ctt aac agt ggg cgg ctc cta cat cta gcc atg cga ggt ctt ggg gag			1536
Leu Asn Ser Gly Arg Leu Leu His Leu Ala Met Arg Gly Leu Gly Glu			
	500	505	510
ctg ggc gcc cag ccc caa cag gac cat gca cgc tgg ccc cgg ggc agc			1584
Leu Gly Ala Gln Pro Gln Gln Asp His Ala Arg Trp Pro Arg Gly Ser			
	515	520	525
agc ctg tcc gag tgc agt gag ggg gat gtc acc atg gcc aac acc atg			1632
Ser Leu Ser Glu Cys Ser Glu Gly Asp Val Thr Met Ala Asn Thr Met			
	530	535	540
gag gag att ctg gaa gag agt gag atc tag			1662
Glu Glu Ile Leu Glu Glu Ser Glu Ile *			
545	550		

<210> 84  
 <211> 553  
 <212> PRT  
 <213> Homo sapiens

<400> 84  
 Met Lys Leu Gly Ser Ser Arg Ala Gly Pro Gly Arg Gly Ser Ala Gly  
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 Leu Leu Pro Gly Val His Glu Leu Pro Met Gly Ile Pro Ala Pro Trp  
 20 25 30  
 Gly Thr Ser Pro Leu Ser Phe His Arg Lys Cys Ser Leu Trp Ala Pro  
 35 40 45  
 Gly Arg Pro Phe Leu Thr Leu Val Leu Leu Val Ser Ile Lys Gln Val  
 50 55 60

Thr	Gly	Ser	Leu	Leu	Glu	Glu	Thr	Thr	Arg	Lys	Trp	Ala	Gln	Tyr	Lys
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Gln	Ala	Cys	Leu	Arg	Asp	Leu	Leu	Lys	Glu	Pro	Ser	Gly	Ile	Phe	Cys
				85					90					95	
Asn	Gly	Thr	Phe	Asp	Gln	Tyr	Val	Cys	Trp	Pro	His	Ser	Ser	Pro	Gly
			100					105					110		
Asn	Val	Ser	Val	Pro	Cys	Pro	Ser	Tyr	Leu	Pro	Trp	Trp	Ser	Glu	Glu
			115					120					125		
Ser	Ser	Gly	Arg	Ala	Tyr	Arg	His	Cys	Leu	Ala	Gln	Gly	Thr	Trp	Gln
						135						140			
Thr	Ile	Glu	Asn	Ala	Thr	Asp	Ile	Trp	Gln	Asp	Asp	Ser	Glu	Cys	Ser
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Glu	Asn	His	Ser	Phe	Lys	Gln	Asn	Val	Asp	Arg	Tyr	Ala	Leu	Leu	Ser
				165					170						175
Thr	Leu	Gln	Leu	Met	Tyr	Thr	Val	Gly	Tyr	Ser	Phe	Ser	Leu	Ile	Ser
			180					185						190	
Leu	Phe	Leu	Ala	Leu	Thr	Leu	Leu	Leu	Phe	Leu	Arg	Lys	Leu	His	Cys
			195					200				205			
Thr	Arg	Asn	Tyr	Ile	His	Met	Asn	Leu	Phe	Ala	Ser	Phe	Ile	Leu	Arg
						215						220			
Thr	Leu	Ala	Val	Leu	Val	Lys	Asp	Val	Val	Phe	Tyr	Asn	Ser	Tyr	Ser
225					230					235					240
Lys	Arg	Pro	Asp	Asn	Glu	Asn	Gly	Trp	Met	Ser	Tyr	Leu	Ser	Glu	Met
				245					250					255	
Ser	Thr	Ser	Cys	Arg	Ser	Val	Gln	Val	Leu	Leu	His	Tyr	Phe	Val	Gly
			260					265					270		
Ala	Asn	Tyr	Leu	Trp	Leu	Leu	Val	Glu	Gly	Leu	Tyr	Leu	His	Thr	Leu
			275					280				285			
Leu	Glu	Pro	Thr	Val	Leu	Pro	Glu	Arg	Arg	Leu	Trp	Pro	Arg	Tyr	Leu
			290			295					300				
Leu	Leu	Gly	Trp	Ala	Phe	Pro	Val	Leu	Phe	Val	Val	Pro	Trp	Gly	Phe
305					310					315					320
Ala	Arg	Ala	His	Leu	Glu	Asn	Thr	Gly	Cys	Trp	Thr	Thr	Asn	Gly	Asn
				325					330					335	
Lys	Lys	Ile	Trp	Trp	Ile	Ile	Arg	Gly	Pro	Met	Met	Leu	Cys	Val	Thr
			340					345					350		
Val	Asn	Phe	Phe	Ile	Phe	Leu	Lys	Ile	Leu	Lys	Leu	Leu	Ile	Ser	Lys
		355					360					365			
Leu	Lys	Ala	His	Gln	Met	Cys	Phe	Arg	Asp	Tyr	Lys	Tyr	Arg	Leu	Ala
					375						380				
Lys	Ser	Thr	Leu	Val	Leu	Ile	Pro	Leu	Leu	Gly	Val	His	Glu	Ile	Leu
385					390					395					400
Phe	Ser	Phe	Ile	Thr	Asp	Asp	Gln	Val	Glu	Gly	Phe	Ala	Lys	Leu	Ile
				405					410					415	
Arg	Leu	Phe	Ile	Gln	Leu	Thr	Leu	Ser	Ser	Phe	His	Gly	Phe	Leu	Val
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Ala	Leu	Gln	Tyr	Gly	Phe	Ala	Asn	Gly	Glu	Val	Lys	Ala	Glu	Leu	Arg
			435				440					445			
Lys	Tyr	Trp	Val	Arg	Phe	Leu	Leu	Ala	Arg	His	Ser	Gly	Cys	Arg	Ala
						455					460				
Cys	Val	Leu	Gly	Lys	Asp	Phe	Arg	Phe	Leu	Gly	Lys	Cys	Pro	Lys	Lys
465					470					475					480
Leu	Ser	Glu	Gly	Asp	Gly	Ala	Glu	Lys	Leu	Arg	Lys	Leu	Gln	Pro	Ser
				485					490					495	
Leu	Asn	Ser	Gly	Arg	Leu	Leu	His	Leu	Ala	Met	Arg	Gly	Leu	Gly	Glu
			500					505					510		
Leu	Gly	Ala	Gln	Pro	Gln	Gln	Asp	His	Ala	Arg	Trp	Pro	Arg	Gly	Ser
			515				520					525			
Ser	Leu	Ser	Glu	Cys	Ser	Glu	Gly	Asp	Val	Thr	Met	Ala	Asn	Thr	Met
			530			535					540				
Glu	Glu	Ile	Leu	Glu	Glu	Ser	Glu	Ile							

545

550

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&lt;211&gt; 2664

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

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&lt;222&gt; (555)...(2144)

&lt;400&gt; 85

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ccaagccagg ctggttctct gcaccccttc aatgacctgt tttcttctgt aaccacaggt 420
tcggtggtga gaggaagcct cgcagaatcc agcagaatcc tcacagaatc cagcagcagc 480
tctgctgggg acatggtcca tggtgcaacc cacagcaaag ccctgacctg acctcctgat 540
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          Met Gly Pro Ser Cys Pro Val Phe Leu Ser Phe Thr
                1                5                10

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aag ctc agc ctg tgg tgg ctc ctt ctg acc cca gca ggt gga gag gaa 638
Lys Leu Ser Leu Trp Trp Leu Leu Leu Thr Pro Ala Gly Gly Glu Glu
          15                20                25

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gct aag cgc cca cct ccc agg gct cct gga gac cca ctc tcc tct ccc 686
Ala Lys Arg Pro Pro Pro Arg Ala Pro Gly Asp Pro Leu Ser Ser Pro
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agt ccc acg gca ttg ccg cag gga ggc tgc cat acc gag act gag gac 734
Ser Pro Thr Ala Leu Pro Gln Gly Gly Ser His Thr Glu Thr Glu Asp
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cgg ctc ttc aaa cac ctc ttc cgg ggc tac aac cgc tgg gcg cgc ccg 782
Arg Leu Phe Lys His Leu Phe Arg Gly Tyr Asn Arg Trp Ala Arg Pro
          65                70                75

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gtg ccc aac act tca gac gtg gtg att gtg cgc ttt gga ctg tcc atc 830
Val Pro Asn Thr Ser Asp Val Val Ile Val Arg Phe Gly Leu Ser Ile
          80                85                90

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gct cag ctc atc gat gtg gat gag aag aac caa atg atg acc acc aac 878
Ala Gln Leu Ile Asp Val Asp Glu Lys Asn Gln Met Met Thr Thr Asn
          95                100                105

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gtc tgg cta aaa cag gag tgg agc gac tac aaa ctg cgc tgg aac ccc 926
Val Trp Leu Lys Gln Glu Trp Ser Asp Tyr Lys Leu Arg Trp Asn Pro
          110                115                120

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gct gat ttt ggc aac atc aca tct ctc agg gtc cct tct gag atg atc 974
Ala Asp Phe Gly Asn Ile Thr Ser Leu Arg Val Pro Ser Glu Met Ile
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tgg atc ccc gac att gtt ctc tac aac aat gca gat ggg gag ttt gca 1022
Trp Ile Pro Asp Ile Val Leu Tyr Asn Asn Ala Asp Gly Glu Phe Ala
          145                150                155

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gtg acc cac atg acc aag gcc cac ctc ttc tcc acg ggc act gtg cac	1070
Val Thr His Met Thr Lys Ala His Leu Phe Ser Thr Gly Thr Val His	
160 165 170	
tgg gtg ccc ccg gcc atc tac aag agc tcc tgc agc atc gac gtc acc	1118
Trp Val Pro Pro Ala Ile Tyr Lys Ser Ser Cys Ser Ile Asp Val Thr	
175 180 185	
ttc ttc ccc ttc gac cag cag aac tgc aag atg aag ttt ggc tcc tgg	1166
Phe Phe Pro Phe Asp Gln Gln Asn Cys Lys Met Lys Phe Gly Ser Trp	
190 195 200	
act tat gac aag gcc aag atc gac ctg gag cag atg gag cag act gtg	1214
Thr Tyr Asp Lys Ala Lys Ile Asp Leu Glu Gln Met Glu Gln Thr Val	
205 210 215 220	
gac ctg aag gac tac tgg gag agc ggc gag tgg gcc atc gtc aat gcc	1262
Asp Leu Lys Asp Tyr Trp Glu Ser Gly Glu Trp Ala Ile Val Asn Ala	
225 230 235	
acg ggc acc tac aac agc aag aag tac gac tgc tgc gcc gag atc tac	1310
Thr Gly Thr Tyr Asn Ser Lys Lys Tyr Asp Cys Cys Ala Glu Ile Tyr	
240 245 250	
ccc gac gtc acc tac gcc ttc gtc atc cgg cgg ctg ccg ctc ttc tac	1358
Pro Asp Val Thr Tyr Ala Phe Val Ile Arg Arg Leu Pro Leu Phe Tyr	
255 260 265	
acc atc aac ctc atc atc ccc tgc ctg ctc atc tcc tgc ctc act gtg	1406
Thr Ile Asn Leu Ile Ile Pro Cys Leu Leu Ile Ser Cys Leu Thr Val	
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Leu Val Phe Tyr Leu Pro Ser Asp Cys Gly Glu Lys Ile Thr Leu Cys	
285 290 295 300	
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Ile Ser Val Leu Leu Ser Leu Thr Val Phe Leu Leu Leu Ile Thr Glu	
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Ile Ile Pro Ser Thr Ser Leu Val Ile Pro Leu Ile Gly Glu Tyr Leu	
320 325 330	
ctg ttc acc atg atc ttc gtc acc ctg tcc atc gtc atc acc gtc ttc	1598
Leu Phe Thr Met Ile Phe Val Thr Leu Ser Ile Val Ile Thr Val Phe	
335 340 345	
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Val Leu Asn Val His His Arg Ser Pro Ser Thr His Thr Met Pro His	
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Trp Val Arg Gly Ala Leu Leu Gly Cys Val Pro Arg Trp Leu Leu Met	
365 370 375 380	
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Asn Arg Pro Pro Pro Pro Val Glu Leu Cys His Pro Leu Arg Leu Lys	
385 390 395	

ctc agc ccc tct tat cac tgg ctg gag agc aac gtg gat gcc gag gag 1790  
 Leu Ser Pro Ser Tyr His Trp Leu Glu Ser Asn Val Asp Ala Glu Glu  
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 agg gag gtg gtg gtg gag gag gag gac aga tgg gca tgt gca ggt cat 1838  
 Arg Glu Val Val Val Glu Glu Glu Asp Arg Trp Ala Cys Ala Gly His  
 415 420 425  
 gtg gcc ccc tct gtg ggc acc ctc tgc agc cac ggc cac ctg cac tct 1886  
 Val Ala Pro Ser Val Gly Thr Leu Cys Ser His Gly His Leu His Ser  
 430 435 440  
 ggg gcc tca ggt ccc aag gct gag gct ctg ctg cag gag ggt gag ctg 1934  
 Gly Ala Ser Gly Pro Lys Ala Glu Ala Leu Leu Gln Glu Gly Glu Leu  
 445 450 455 460  
 ctg cta tca ccc cac atg cag aag gca ctg gaa ggt gtg cac tac att 1982  
 Leu Leu Ser Pro His Met Gln Lys Ala Leu Glu Gly Val His Tyr Ile  
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 gcc gac cac ctg cgg tct gag gat gct gac tct tcg gtg aag gag gac 2030  
 Ala Asp His Leu Arg Ser Glu Asp Ala Asp Ser Ser Val Lys Glu Asp  
 480 485 490  
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 Trp Lys Tyr Val Ala Met Val Ile Asp Arg Ile Phe Leu Trp Leu Phe  
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 Ile Ile Val Cys Phe Leu Gly Thr Ile Gly Leu Phe Leu Pro Pro Phe  
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 Leu Ala Gly Met Ile \*  
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 Pro Pro Arg Ala Pro Gly Asp Pro Leu Ser Ser Pro Ser Pro Thr Ala  
 35 40 45  
 Leu Pro Gln Gly Gly Ser His Thr Glu Thr Glu Asp Arg Leu Phe Lys  
 50 55 60  
 His Leu Phe Arg Gly Tyr Asn Arg Trp Ala Arg Pro Val Pro Asn Thr

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Ser	Asp	Val	Val	Ile	Val	Arg	Phe	Gly	Leu	Ser	Ile	Ala	Gln	Leu
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Asp	Val	Asp	Glu	Lys	Asn	Gln	Met	Met	Thr	Thr	Asn	Val	Trp	Leu
			100					105					110	
Gln	Glu	Trp	Ser	Asp	Tyr	Lys	Leu	Arg	Trp	Asn	Pro	Ala	Asp	Phe
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			130			135					140			Asp
Ile	Val	Leu	Tyr	Asn	Asn	Ala	Asp	Gly	Glu	Phe	Ala	Val	Thr	His
145				150						155				Met
Thr	Lys	Ala	His	Leu	Phe	Ser	Thr	Gly	Thr	Val	His	Trp	Val	Pro
			165						170					Pro
Ala	Ile	Tyr	Lys	Ser	Ser	Cys	Ser	Ile	Asp	Val	Thr	Phe	Phe	Phe
			180						185				190	
Asp	Gln	Gln	Asn	Cys	Lys	Met	Lys	Phe	Gly	Ser	Trp	Thr	Tyr	Asp
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Ala	Lys	Ile	Asp	Leu	Glu	Gln	Met	Glu	Gln	Thr	Val	Asp	Leu	Lys
			210			215					220			Asp
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			245						250					Thr
Tyr	Ala	Phe	Val	Ile	Arg	Arg	Leu	Pro	Leu	Phe	Tyr	Thr	Ile	Asn
			260				265						270	Leu
Ile	Ile	Pro	Cys	Leu	Leu	Ile	Ser	Cys	Leu	Thr	Val	Leu	Val	Phe
			275				280					285		Tyr
Leu	Pro	Ser	Asp	Cys	Gly	Glu	Lys	Ile	Thr	Leu	Cys	Ile	Ser	Val
			290			295					300			Leu
Leu	Ser	Leu	Thr	Val	Phe	Leu	Leu	Leu	Ile	Thr	Glu	Ile	Ile	Pro
305					310					315				Ser
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Ile	Phe	Val	Thr	Leu	Ser	Ile	Val	Ile	Thr	Val	Phe	Val	Leu	Asn
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His	His	Arg	Ser	Pro	Ser	Thr	His	Thr	Met	Pro	His	Trp	Val	Arg
			355				360					365		Gly
Ala	Leu	Gly	Cys	Val	Pro	Arg	Trp	Leu	Leu	Met	Asn	Arg	Pro	Pro
			370			375				380				
Pro	Pro	Val	Glu	Leu	Cys	His	Pro	Leu	Arg	Leu	Lys	Leu	Ser	Pro
385				390						395				Ser
Tyr	His	Trp	Leu	Glu	Ser	Asn	Val	Asp	Ala	Glu	Glu	Arg	Glu	Val
			405						410					Val
Val	Glu	Glu	Glu	Asp	Arg	Trp	Ala	Cys	Ala	Gly	His	Val	Ala	Pro
			420					425					430	Ser
Val	Gly	Thr	Leu	Cys	Ser	His	Gly	His	Leu	His	Ser	Gly	Ala	Ser
			435				440					445		Gly
Pro	Lys	Ala	Glu	Ala	Leu	Leu	Gln	Glu	Gly	Glu	Leu	Leu	Leu	Ser
			450			455					460			Pro
His	Met	Gln	Lys	Ala	Leu	Glu	Gly	Val	His	Tyr	Ile	Ala	Asp	His
465					470					475				Leu
Arg	Ser	Glu	Asp	Ala	Asp	Ser	Ser	Val	Lys	Glu	Asp	Trp	Lys	Tyr
			485						490					Val
Ala	Met	Val	Ile	Asp	Arg	Ile	Phe	Leu	Trp	Leu	Phe	Ile	Ile	Val
			500					505					510	Cys
Phe	Leu	Gly	Thr	Ile	Gly	Leu	Phe	Leu	Pro	Pro	Phe	Leu	Ala	Gly
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agc gcc aac ctg ctc atc ttc atc ctg ctg ctc acc ctc acc att ctc 293  
 Ser Ala Asn Leu Leu Ile Phe Ile Leu Leu Leu Thr Leu Thr Ile Leu  
 75 80 85

ggc ctg gct atg att tat ggt ctt ttg gtg ggc ctt gtg ctt cgg tat 389  
Gly Leu Ala Met Ile Tyr Gly Leu Val Gly Leu Val Leu Arg Tyr  
105 110 115

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Val Gln Ser Ser Pro Thr Thr Leu Leu Val Thr Phe Asp Pro Glu Val  
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170 175 180

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Phe Tyr Phe Thr Asp Cys Leu Leu Phe Gly Ala Ile Val Ser Ala Thr	
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Glu Leu Tyr Ala Leu Leu Phe Gly Glu Ser Val Leu Asn Asp Ala Val	
250 255 260	
gcc ata gtg ctg tcc tcc tca ata gtg gca tac cag cca gct gga gac	869
Ala Ile Val Leu Ser Ser Ser Ile Val Ala Tyr Gln Pro Ala Gly Asp	
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Asn Ser His Thr Phe Asp Val Thr Ala Met Phe Lys Ser Ile Gly Ile	
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Val Val Thr Ala Leu Val Thr Lys Phe Thr Lys Leu Arg Glu Phe Gln	
315 320 325	
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Gln His Arg Thr Lys Gln Leu Phe Glu Leu Leu Asn Phe Leu Ala Glu	
375 380 385 390	
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Asn Phe Ile Phe Ser Tyr Met Gly Leu Thr Leu Phe Thr Phe Gln Asn	
395 400 405	
cat gtc ttt aac cca aca ttt gta gta gga gca ttt gtt gct att ttc	1301
His Val Phe Asn Pro Thr Phe Val Val Gly Ala Phe Val Ala Ile Phe	
410 415 420	
ttg gga aga gct gcc aat att tac ccc ttg tcc ctc tta ctt aat ttg	1349
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425 430 435	

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440 445 450	
gct ggc ctt cgt ggt gca atg gca ttt gcc ttg gcc att cga gat act	1445
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455 460 465 470	
gcc act tat gca cgg caa atg atg ttc agc acc acg ctt ctg att gtg	1493
Ala Thr Tyr Ala Arg Gln Met Met Phe Ser Thr Thr Leu Leu Ile Val	
475 480 485	
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Phe Phe Thr Val Trp Val Phe Gly Gly Thr Thr Ala Met Leu Ser	
490 495 500	
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Cys Leu His Ile Arg Val Gly Val Asp Ser Asp Gln Glu His Leu Gly	
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Val Pro Glu Asn Glu Arg Arg Thr Thr Lys Ala Glu Ser Ala Trp Leu	
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ttc cgg atg tgg tac aac ttt gat cat aac tat ctg aag cct ctg ctg	1685
Phe Arg Met Trp Tyr Asn Phe Asp His Asn Tyr Leu Lys Pro Leu Leu	
535 540 545 550	
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Thr His Ser Gly Pro Pro Leu Thr Thr Thr Leu Pro Ala Cys Cys Gly	
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Gln Leu Lys Asp Asp Asp Ser Asp Leu Ile Leu Asn Asp Gly Asp Ile	
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Ser Leu Thr Tyr Gly Asp Ser Thr Val Asn Thr Glu Pro Ala Thr Ser	
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Ser Ala Pro Arg Arg Phe Met Gly Asn Ser Ser Glu Asp Ala Leu Asp	
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Arg Glu Leu Ala Phe Gly Asp His Glu Leu Val Ile Arg Gly Thr Arg	
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Asn Thr Arg His Gly Pro Ala *	
665	

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Leu	Thr	Leu	Thr	Ile	Leu	Thr	Ile	Trp	Leu	Phe	Lys	His	Arg	Arg	Ala
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Phe	Tyr	Ala	Gly	Tyr	Ser	Leu	Lys	Arg	Arg	His	Phe	Phe	Arg	Asn	Leu
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Tyr	Gln	Pro	Ala	Gly	Asp	Asn	Ser	His	Thr	Phe	Asp	Val	Thr	Ala	Met
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Lys	Leu	Arg	Glu	Phe	Gln	Leu	Leu	Glu	Thr	Gly	Leu	Phe	Phe	Leu	Met
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Asn	Leu	Ser	Thr	Glu	Ser	Gln	His	Arg	Thr	Lys	Gln	Leu	Phe	Glu	Leu
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Leu	Phe	Thr	Phe	Gln	Asn	His	Val	Phe	Asn	Pro	Thr	Phe	Val	Val	Gly
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Ala	Phe	Val	Ala	Ile	Phe	Leu	Gly	Arg	Ala	Ala	Asn	Ile	Tyr	Pro	Leu
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Gln	His	Met	Met	Met	Phe	Ala	Gly	Leu	Arg	Gly	Ala	Met	Ala	Phe	Ala
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Leu	Ala	Ile	Arg	Asp	Thr	Ala	Thr	Tyr	Ala	Arg	Gln	Met	Met	Phe	Ser
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Thr	Thr	Leu	Leu	Ile	Val	Phe	Phe	Thr	Val	Trp	Val	Phe	Gly	Gly	Gly
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Asp	Gln	Glu	His	Leu	Gly	Val	Pro	Glu	Asn	Glu	Arg	Arg	Thr	Thr	Lys
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Ala	Glu	Ser	Ala	Trp	Leu	Phe	Arg	Met	Trp	Tyr	Asn	Phe	Asp	His	Asn
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Tyr	Leu	Lys	Pro	Leu	Leu	Thr	His	Ser	Gly	Pro	Pro	Leu	Thr	Thr	Thr
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Leu	Pro	Ala	Cys	Cys	Gly	Pro	Ile	Ala	Arg	Cys	Leu	Thr	Ser	Pro	Gln
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Ala	Tyr	Glu	Asn	Gln	Glu	Gln	Leu	Lys	Asp	Asp	Asp	Ser	Asp	Leu	Ile





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Glu	Gln	Lys	Glu	Arg	Asp	Cys	Thr	Ser	Glu	Leu	Ala	Leu	Glu	Leu	Ile	
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Asn	Pro	Ala	Cys	Leu	Pro	Ile	Tyr	Gln	Asp	Met	Thr	Gln	Pro	Leu	Asn	
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His	Tyr	Phe	Ile	Cys	Ser	Ser	His	Asn	Thr	Tyr	Leu	Val	Gly	Asp	Gln	
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Leu	Cys	Gly	Gln	Ser	Ser	Val	Glu	Gly	Tyr	Ile	Arg	Ala	Leu	Lys	Arg	
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Gly	Cys	Arg	Cys	Val	Glu	Val	Asp	Val	Trp	Asp	Gly	Pro	Ser	Gly	Glu	
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cct	gtc	gtt	tac	cac	gga	cac	acc	ctg	acc	tcc	cgc	atc	ctg	ttc	aaa	1287
Pro	Val	Val	Tyr	His	Gly	His	Thr	Leu	Thr	Ser	Arg	Ile	Leu	Phe	Lys	
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gat	gtc	gtg	gcc	aca	gta	gca	cag	tat	gcc	ttc	cag	aca	tca	gac	tac	1335
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Pro Val Ile Leu Ser Leu Glu Thr His Cys Ser Trp Glu Gln Gln Gln	
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Thr Met Ala Arg His Leu Thr Glu Ile Leu Gly Glu Gln Leu Leu Ser	
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Thr Thr Leu Asp Gly Val Leu Pro Thr Gln Leu Pro Ser Pro Glu Glu	
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Gln Asn Leu Gln Asn Lys Asp Lys Lys Lys Lys Ser Lys Pro Ile Leu	
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Cys Pro Ala Leu Ser Ser Leu Val Ile Tyr Leu Lys Ser Val Ser Phe	
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Arg Ser Phe Thr His Ser Lys Glu His Tyr His Phe Tyr Glu Ile Ser	
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Val Leu Lys Pro Asp Phe Leu Arg Asp Ile Gln Ser Ser Phe His Pro	
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Asp	Val	Trp	Asp	Gly	Pro	Ser	Gly	Glu	Pro	Val	Val	Tyr	His	Gly	His
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Thr	His	Cys	Ser	Trp	Glu	Gln	Gln	Gln	Thr	Met	Ala	Arg	His	Leu	Thr
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Glu	Ile	Leu	Gly	Glu	Gln	Leu	Leu	Ser	Thr	Thr	Leu	Asp	Gly	Val	Leu
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Glu	Ala	Glu	Pro	Glu	Leu	Glu	Glu	Ser	Glu	Leu	Ala	Leu	Glu	Ser	Gln
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Phe	Glu	Thr	Glu	Pro	Glu	Pro	Gln	Glu	Gln	Asn	Leu	Gln	Asn	Lys	Asp
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Lys	Lys	Lys	Lys	Ser	Lys	Pro	Ile	Leu	Cys	Pro	Ala	Leu	Ser	Ser	Leu
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Val	Ile	Tyr	Leu	Lys	Ser	Val	Ser	Phe	Arg	Ser	Phe	Thr	His	Ser	Lys
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Glu	His	Tyr	His	Phe	Tyr	Glu	Ile	Ser	Ser	Phe	Ser	Glu	Thr	Lys	Ala



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Gly Ala Thr Val Phe Ser Ala Leu Glu Ser Pro Gly Glu Ala Glu Ala	
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Arg Ala Arg Trp Gly Ala Thr Leu Arg Asn Phe Ser Ala Ala His Gly	
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gtg gcc gag cca gag ctg cgc gcc ttc ctc cgg cac tac gag gcc gcg	765
Val Ala Glu Pro Glu Leu Arg Ala Phe Leu Arg His Tyr Glu Ala Ala	
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Leu Ala Ala Gly Val Arg Ala Asp Ala Leu Arg Pro Arg Trp Asp Phe	
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ccc ggc gcc ttc tac ttc gtg ggc acc gtg gtg tca acc ata ggt ttc	861
Pro Gly Ala Phe Tyr Phe Val Gly Thr Val Val Ser Thr Ile Gly Phe	
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Gly Met Thr Thr Pro Ala Thr Val Gly Gly Lys Ala Phe Leu Ile Ala	
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Tyr Gly Leu Phe Gly Cys Ala Gly Thr Ile Leu Phe Phe Asn Leu Phe	
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Leu Glu Arg Ile Ile Ser Leu Leu Ala Phe Ile Met Arg Ala Cys Arg	
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Glu Arg Gln Leu Arg Arg Ser Gly Leu Leu Pro Ala Thr Phe Arg Arg	
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Gly Ser Ala Leu Ser Glu Ala Asp Ser Leu Ala Gly Trp Lys Pro Ser	
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Val Tyr His Val Leu Leu Ile Leu Gly Leu Phe Ala Val Leu Leu Ser	
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Cys Cys Ala Ser Ala Met Tyr Thr Ser Val Glu Gly Trp Asp Tyr Val	
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Asp Ser Leu Tyr Phe Cys Phe Val Thr Phe Ser Thr Ile Gly Phe Gly	
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Asp Leu Val Ser Ser Gln His Ala Ala Tyr Arg Asn Gln Gly Leu Tyr	
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 Arg Leu Gly Asn Phe Leu Phe Ile Leu Leu Gly Val Cys Cys Ile Tyr  
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 Ser Leu Phe Asn Val Ile Ser Ile Leu Ile Lys Gln Val Leu Asn Trp  
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 Met Leu Arg Lys Leu Ser Cys Arg Cys Cys Ala Arg Cys Cys Pro Ala  
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 Pro Gly Ala Pro Leu Ala Arg Arg Asn Ala Ile Thr Pro Gly Ser Arg  
 325 330 335 340

ctg cgc cgc cgc ctg gcc gcg ctc ggc gcc gac ccc gcg gcc cgc gac 1533  
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 35 40 45  
 Tyr Leu Val Ala Gly Ala Thr Val Phe Ser Ala Leu Glu Ser Pro Gly  
 50 55 60  
 Glu Ala Glu Ala Arg Ala Arg Trp Gly Ala Thr Leu Arg Asn Phe Ser  
 65 70 75 80  
 Ala Ala His Gly Val Ala Glu Pro Glu Leu Arg Ala Phe Leu Arg His





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Phe	Pro	Gln	Lys	Gly	Leu	Glu	Pro	Gly	Asp	Ile	Ala	Val	Leu	Val	Leu	
	20					25					30					
tac	ttc	ctc	ttt	gtc	ctg	gct	gtt	gga	cta	tgg	tcc	aca	gtg	aag	acc	382
Tyr	Phe	Leu	Phe	Val	Leu	Ala	Val	Gly	Leu	Trp	Ser	Thr	Val	Lys	Thr	
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aaa	aga	gac	aca	gtg	aaa	ggc	tac	ttc	ctg	gct	gga	ggg	gac	atg	gtg	430
Lys	Arg	Asp	Thr	Val	Lys	Gly	Tyr	Phe	Leu	Ala	Gly	Gly	Asp	Met	Val	
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Trp	Trp	Pro	Val	Gly	Ala	Ser	Leu	Phe	Ala	Ser	Asn	Val	Gly	Ser	Gly	
		70						75					80			
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Ser	Ala	Tyr	Glu	Leu	Asn	Gly	Leu	Phe	Ser	Val	Leu	Met	Leu	Ala	Trp	
	100					105					110					
atc	ttc	cta	ccc	atc	tac	att	gct	ggg	cag	gtc	acc	acg	atg	cca	gaa	622
Ile	Phe	Leu	Pro	Ile	Tyr	Ile	Ala	Gly	Gln	Val	Thr	Thr	Met	Pro	Glu	
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Tyr	Leu	Arg	Lys	Arg	Phe	Gly	Gly	Ile	Arg	Ile	Pro	Ile	Ile	Leu	Ala	
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Val	Leu	Tyr	Leu	Phe	Ile	Tyr	Ile	Phe	Thr	Lys	Ile	Ser	Val	Asp	Met	
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tat	gca	ggg	gcc	atc	ttc	atc	cag	cag	tct	ttg	cac	ctg	gat	ctg	tac	766
Tyr	Ala	Gly	Ala	Ile	Phe	Ile	Gln	Gln	Ser	Leu	His	Leu	Asp	Leu	Tyr	
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ctg	gcc	ata	gtt	ggg	cta	ctg	gcc	atc	act	gct	gta	tac	acg	gtt	gct	814
Leu	Ala	Ile	Val	Gly	Leu	Leu	Ala	Ile	Thr	Ala	Val	Tyr	Thr	Val	Ala	
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Gly	Gly	Leu	Ala	Ala	Val	Ile	Tyr	Thr	Asp	Ala	Leu	Gln	Thr	Leu	Ile	
	195				200					205					210	
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Met	Leu	Ile	Gly	Ala	Leu	Thr	Leu	Met	Gly	Tyr	Ser	Phe	Ala	Ala	Val	
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Gly	Gly	Met	Glu	Gly	Leu	Lys	Glu	Lys	Tyr	Phe	Leu	Ala	Leu	Ala	Ser	
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Asn	Arg	Ser	Glu	Asn	Ser	Ser	Cys	Gly	Leu	Pro	Arg	Glu	Asp	Ala	Phe	
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	260					265					270					
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Leu	Phe	Gly	Met	Ser	Ile	Pro	Ser	Leu	Trp	Tyr	Trp	Cys	Thr	Asp	Gln	
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gtg	att	gtc	cag	cgg	act	ctg	gct	gcc	aag	aac	ctg	tcc	cat	gcc	aaa	1150
Val	Ile	Val	Gln	Arg	Thr	Leu	Ala	Ala	Lys	Asn	Leu	Ser	His	Ala	Lys	
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gga	ggg	gct	ctg	atg	gct	gca	tac	ctg	aag	gtg	ctg	ccc	ctc	ttc	ata	1198
Gly	Gly	Ala	Leu	Met	Ala	Ala	Tyr	Leu	Lys	Val	Leu	Pro	Leu	Phe	Ile	
		310						315					320			
atg	gtg	ttc	cct	ggg	atg	gtc	agc	cgc	atc	ctc	ttc	cca	gat	caa	gtg	1246
Met	Val	Phe	Pro	Gly	Met	Val	Ser	Arg	Ile	Leu	Phe	Pro	Asp	Gln	Val	
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gcc	tgt	gca	gat	cca	gag	atc	tgc	cag	aag	atc	tgc	agc	aac	ccc	tca	1294
Ala	Cys	Ala	Asp	Pro	Glu	Ile	Cys	Gln	Lys	Ile	Cys	Ser	Asn	Pro	Ser	
	340					345					350					
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Gly	Cys	Ser	Asp	Ile	Ala	Tyr	Pro	Lys	Leu	Val	Leu	Glu	Leu	Leu	Pro	
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Thr	Gly	Leu	Arg	Gly	Leu	Met	Met	Ala	Val	Met	Val	Ala	Ala	Leu	Met	
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tcc	tcc	ctc	acc	tcc	atc	ttt	aac	agt	gcc	agc	acc	atc	ttc	acc	atg	1438
Ser	Ser	Leu	Thr	Ser	Ile	Phe	Asn	Ser	Ala	Ser	Thr	Ile	Phe	Thr	Met	
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Asp	Leu	Trp	Asn	His	Leu	Arg	Pro	Arg	Ala	Ser	Glu	Lys	Glu	Leu	Met	
		405					410					415				
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Ile	Val	Gly	Arg	Val	Phe	Val	Leu	Leu	Leu	Val	Leu	Val	Ser	Ile	Leu	
	420					425					430					
tgg	atc	cct	gtg	gtc	cag	gcc	agc	cag	ggc	ggc	cag	ctc	ttc	atc	tat	1582
Trp	Ile	Pro	Val	Val	Gln	Ala	Ser	Gln	Gly	Gly	Gln	Leu	Phe	Ile	Tyr	
435					440				445						450	
atc	cag	tcc	atc	agc	tcc	tac	ctg	cag	ccg	cct	gtg	gcg	gtg	gtc	ttc	1630
Ile	Gln	Ser	Ile	Ser	Ser	Tyr	Leu	Gln	Pro	Pro	Val	Ala	Val	Val	Phe	
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Ile	Met	Gly	Cys	Phe	Trp	Lys	Arg	Thr	Asn	Glu	Lys	Gly	Ala	Phe	Trp	
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Gly Leu Ile Ser Gly Leu Leu Leu Gly Leu Val Arg Leu Val Leu Asp	
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Phe Ile Tyr Val Gln Pro Arg Cys Asp Gln Pro Asp Glu Arg Pro Val	
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ctg gtg aag agc att cac tac ctc tac ttc tcc atg atc ctg tcc acg	1822
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Val Thr Leu Ile Thr Val Ser Thr Val Ser Trp Phe Thr Glu Pro Pro	
535 540 545	
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Ser Lys Glu Met Val Ser His Leu Thr Trp Phe Thr Arg His Asp Pro	
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Val Val Gln Lys Glu Gln Ala Pro Pro Ala Ala Pro Leu Ser Leu Thr	
565 570 575	
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Leu Ser Gln Asn Gly Met Pro Glu Ala Ser Ser Ser Ser Ser Val Gln	
580 585 590	
ttc gag atg gtt caa gaa aac acg tct aaa acc cac agc tgt gac atg	2062
Phe Glu Met Val Gln Glu Asn Thr Ser Lys Thr His Ser Cys Asp Met	
595 600 605 610	
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Thr Pro Lys Gln Ser Lys Val Val Lys Ala Ile Leu Trp Leu Cys Gly	
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Ile Gln Glu Lys Gly Lys Glu Glu Leu Pro Ala Arg Ala Glu Ala Ile	
630 635 640	
ata gtt tcc ctg gaa gaa aac ccc ttg gtg aag acc ctc ctg gac gtc	2206
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645 650 655	
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gct tag tgtggggtga acccaggggt ccaaactctg tttctcttca gtgctccatt	2310
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Ser	Gly	His	Phe	Ile	Gly	Leu	Ala	Gly	Ser	Gly	Ala	Ala	Thr	Gly	Ile
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Phe	Ile	Met	Val	Phe	Pro	Gly	Met	Val	Ser	Arg	Ile	Leu	Phe	Pro	Asp
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Gln	Val	Ala	Cys	Ala	Asp	Pro	Glu	Ile	Cys	Gln	Lys	Ile	Cys	Ser	Asn
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Pro	Ser	Gly	Cys	Ser	Asp	Ile	Ala	Tyr	Pro	Lys	Leu	Val	Leu	Glu	Leu
		355					360					365			
Leu	Pro	Thr	Gly	Leu	Arg	Gly	Leu	Met	Met	Ala	Val	Met	Val	Ala	Ala
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Leu	Met	Ser	Ser	Leu	Thr	Ser	Ile	Phe	Asn	Ser	Ala	Ser	Thr	Ile	Phe
385					390					395					400
Thr	Met	Asp	Leu	Trp	Asn	His	Leu	Arg	Pro	Arg	Ala	Ser	Glu	Lys	Glu
				405					410					415	
Leu	Met	Ile	Val	Gly	Arg	Val	Phe	Val	Leu	Leu	Leu	Val	Leu	Val	Ser
			420					425					430		
Ile	Leu	Trp	Ile	Pro	Val	Val	Gln	Ala	Ser	Gln	Gly	Gly	Gln	Leu	Phe
		435					440					445			
Ile	Tyr	Ile	Gln	Ser	Ile	Ser	Ser	Tyr	Leu	Gln	Pro	Pro	Val	Ala	Val
	450					455					460				
Val	Phe	Ile	Met	Gly	Cys	Phe	Trp	Lys	Arg	Thr	Asn	Glu	Lys	Gly	Ala
465					470					475					480
Phe	Trp	Gly	Leu	Ile	Ser	Gly	Leu	Leu	Leu	Gly	Leu	Val	Arg	Leu	Val

				485					490					495			
Leu	Asp	Phe	Ile	Tyr	Val	Gln	Pro	Arg	Cys	Asp	Gln	Pro	Asp	Glu	Arg		
			500					505					510				
Pro	Val	Leu	Val	Lys	Ser	Ile	His	Tyr	Leu	Tyr	Phe	Ser	Met	Ile	Leu		
		515					520					525					
Ser	Thr	Val	Thr	Leu	Ile	Thr	Val	Ser	Thr	Val	Ser	Trp	Phe	Thr	Glu		
	530					535					540						
Pro	Pro	Ser	Lys	Glu	Met	Val	Ser	His	Leu	Thr	Trp	Phe	Thr	Arg	His		
545					550					555					560		
Asp	Pro	Val	Val	Gln	Lys	Glu	Gln	Ala	Pro	Pro	Ala	Ala	Pro	Leu	Ser		
			565						570					575			
Leu	Thr	Leu	Ser	Gln	Asn	Gly	Met	Pro	Glu	Ala	Ser	Ser	Ser	Ser	Ser		
		580						585					590				
Val	Gln	Phe	Glu	Met	Val	Gln	Glu	Asn	Thr	Ser	Lys	Thr	His	Ser	Cys		
	595						600					605					
Asp	Met	Thr	Pro	Lys	Gln	Ser	Lys	Val	Val	Lys	Ala	Ile	Leu	Trp	Leu		
	610					615					620						
Cys	Gly	Ile	Gln	Glu	Lys	Gly	Lys	Glu	Glu	Leu	Pro	Ala	Arg	Ala	Glu		
625					630					635					640		
Ala	Ile	Ile	Val	Ser	Leu	Glu	Glu	Asn	Pro	Leu	Val	Lys	Thr	Leu	Leu		
			645						650					655			
Asp	Val	Asn	Leu	Ile	Phe	Cys	Val	Ser	Cys	Ala	Ile	Phe	Ile	Trp	Gly		
		660						665					670				
Tyr	Phe	Ala															
		675															

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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS

<222> (1)...(1911)

<400> 95																	
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Met Lys Lys Leu Gln Gly Ala His Leu Arg Lys Pro Val Thr Pro Asp																	
1 5 10 15																	
ctg ctg atg acc ccc agt gac cag ggc gat gtc gac ctg gat gtg gac																	96
Leu Leu Met Thr Pro Ser Asp Gln Gly Asp Val Asp Leu Asp Val Asp																	
20 25 30																	
ttt gct gca cac cgg ggg aac tgg aca ggc aag ctg gac ttc ctg ctg																	144
Phe Ala Ala His Arg Gly Asn Trp Thr Gly Lys Leu Asp Phe Leu Leu																	
35 40 45																	
tcc tgc att ggc tac tgt gta ggc ctg ggg aat gtc tgg cgc ttc ccc																	192
Ser Cys Ile Gly Tyr Cys Val Gly Leu Gly Asn Val Trp Arg Phe Pro																	
50 55 60																	
tat cga gcg tac acc aat gga gga ggc gcc ttc ctc gtg ccc tac ttc																	240
Tyr Arg Ala Tyr Thr Asn Gly Gly Gly Ala Phe Leu Val Pro Tyr Phe																	
65 70 75 80																	
ctc atg ctg gcc atc tgt ggc atc ccc ctc ttc ttc ctg gag ctc tcc																	288
Leu Met Leu Ala Ile Cys Gly Ile Pro Leu Phe Phe Leu Glu Leu Ser																	
85 90 95																	

ctg ggc cag ttc tcc agc cta ggg ccc ctg gct gtc tgg aaa atc agc	336
Leu Gly Gln Phe Ser Ser Leu Gly Pro Leu Ala Val Trp Lys Ile Ser	
100 105 110	
cct ctc ttc aaa ggc gcc ggc gca gcc atg ctg ctc atc gtg ggc ttg	384
Pro Leu Phe Lys Gly Ala Gly Ala Ala Met Leu Leu Ile Val Gly Leu	
115 120 125	
gtg gcc atc tac tac aac atg atc atc gcc tac gtg ctc ttc tac ctc	432
Val Ala Ile Tyr Tyr Asn Met Ile Ile Ala Tyr Val Leu Phe Tyr Leu	
130 135 140	
ttc gcc tcc ctc acc agc gac cta ccc tgg gag cac tgt ggc aac tgg	480
Phe Ala Ser Leu Thr Ser Asp Leu Pro Trp Glu His Cys Gly Asn Trp	
145 150 155 160	
tgg aac aca gaa ctc tgc ctg gag cac aga gtc tcc aag gac ggc aac	528
Trp Asn Thr Glu Leu Cys Leu Glu His Arg Val Ser Lys Asp Gly Asn	
165 170 175	
ggg gcc ctg ccc ctc aac ctc acc tgc acc gtc agc ccc agt gag gag	576
Gly Ala Leu Pro Leu Asn Leu Thr Cys Thr Val Ser Pro Ser Glu Glu	
180 185 190	
tac tgg agc cgc tac gtc ctc cac atc caa ggc agc cag ggc atc ggc	624
Tyr Trp Ser Arg Tyr Val Leu His Ile Gln Gly Ser Gln Gly Ile Gly	
195 200 205	
agc cct ggg gag atc cgc tgg aac ctc tgc ctc tgc ctg ctg ctg gcc	672
Ser Pro Gly Glu Ile Arg Trp Asn Leu Cys Leu Cys Leu Leu Leu Ala	
210 215 220	
tgg gtc atc gtg ttc ctc tgt atc ctc aag ggt gtg aag tct tcg ggc	720
Trp Val Ile Val Phe Leu Cys Ile Leu Lys Gly Val Lys Ser Ser Gly	
225 230 235 240	
aag gtg gtg tat ttc acg gcc acg ttc ccc tac ctc atc ctg ctc atg	768
Lys Val Val Tyr Phe Thr Ala Thr Phe Pro Tyr Leu Ile Leu Leu Met	
245 250 255	
ctg ctg gtc cgc gga gtc acc ctc cca ggg gcc tgg aag ggc atc cag	816
Leu Leu Val Arg Gly Val Thr Leu Pro Gly Ala Trp Lys Gly Ile Gln	
260 265 270	
ttc tat ctc acc ccc cag ttc cac cac ttg ttg tct tcc aag gtg tgg	864
Phe Tyr Leu Thr Pro Gln Phe His His Leu Leu Ser Ser Lys Val Trp	
275 280 285	
att gaa gct gct ctt cag atc ttc tat tcc ctg ggt gtg ggc ttc ggg	912
Ile Glu Ala Ala Leu Gln Ile Phe Tyr Ser Leu Gly Val Gly Phe Gly	
290 295 300	
ggg ctc ctc acc ttt gcc tcc tac aac acg ttt cac cag aac atc tat	960
Gly Leu Leu Thr Phe Ala Ser Tyr Asn Thr Phe His Gln Asn Ile Tyr	
305 310 315 320	
aga gac acc ttc atc gtc act ctg ggc aac gcc atc acc agc atc ctg	1008
Arg Asp Thr Phe Ile Val Thr Leu Gly Asn Ala Ile Thr Ser Ile Leu	
325 330 335	

gct ggc ttt gcc atc ttc tcc gtg ctg ggc tac atg tct cag gag ctg Ala Gly Phe Ala Ile Phe Ser Val Leu Gly Tyr Met Ser Gln Glu Leu 340 345 350	1056
ggc gtg cct gtg gac caa gta gcc aaa gca ggc cct ggc ctg gcc ttt Gly Val Pro Val Asp Gln Val Ala Lys Ala Gly Pro Gly Leu Ala Phe 355 360 365	1104
gtc gtc tac cca cag gcc atg acc atg ctg cct ctg tca ccc ttc tgg Val Val Tyr Pro Gln Ala Met Thr Met Leu Pro Leu Ser Pro Phe Trp 370 375 380	1152
tcc ttt ctc ttc ttc ttc atg ctt ctg act ctc ggc cta gat agc cag Ser Phe Leu Phe Phe Phe Met Leu Leu Thr Leu Gly Leu Asp Ser Gln 385 390 395 400	1200
ttt gcc ttt ctg gag acc att gtg aca gct gtg aca gat gag ttc cca Phe Ala Phe Leu Glu Thr Ile Val Thr Ala Val Thr Asp Glu Phe Pro 405 410 415	1248
tac tac ctg cgg ccc aag aag gcg gtg ttc tca ggg ctc atc tgc gtg Tyr Tyr Leu Arg Pro Lys Lys Ala Val Phe Ser Gly Leu Ile Cys Val 420 425 430	1296
gcc atg tac ctg atg ggg ctg atc ctc acc act gat ggg gcc atg tac Ala Met Tyr Leu Met Gly Leu Ile Leu Thr Thr Asp Gly Gly Met Tyr 435 440 445	1344
tgg ctg gtc ctt ctg gat gac tac agc gcc agc ttc ggg ctg atg gtg Trp Leu Val Leu Leu Asp Asp Tyr Ser Ala Ser Phe Gly Leu Met Val 450 455 460	1392
gtg gtt atc acc aca tgc ctt gcc gtg aca cgg gtg tat gcc att cag Val Val Ile Thr Thr Cys Leu Ala Val Thr Arg Val Tyr Gly Ile Gln 465 470 475 480	1440
agg ttc tgc cga gac atc cac atg atg ctg ggc ttc aag ccg gcc ctc Arg Phe Cys Arg Asp Ile His Met Met Leu Gly Phe Lys Pro Gly Leu 485 490 495	1488
tac ttc agg gcc tgc tgg ctg ttc ctg tcc cca gcc acg ctc ttg gcc Tyr Phe Arg Ala Cys Trp Leu Phe Leu Ser Pro Ala Thr Leu Leu Ala 500 505 510	1536
ctc ctg gtg tat agc atc gtc aag tac cag ccc tcg gag tat gcc agt Leu Leu Val Tyr Ser Ile Val Lys Tyr Gln Pro Ser Glu Tyr Gly Ser 515 520 525	1584
tac cgc ttc ccg ccc tgg gct gag ctg ctg ggc atc ctg atg gcc ctg Tyr Arg Phe Pro Pro Trp Ala Glu Leu Leu Gly Ile Leu Met Gly Leu 530 535 540	1632
ctg tcc tgc ctc atg atc cca gct ggc atg ctg gtg gct gtg ctt cga Leu Ser Cys Leu Met Ile Pro Ala Gly Met Leu Val Ala Val Leu Arg 545 550 555 560	1680
gaa gag ggc tca ctc tgg gag cgg ctc caa cag gcc agc cgg ccg gcc Glu Glu Gly Ser Leu Trp Glu Arg Leu Gln Gln Ala Ser Arg Pro Ala 565 570 575	1728
atg gac tgg gga cca tcg ctg gag gag aac cgg acg gcc atg tat gtg	1776



Met	Asp	Trp	Gly	Pro	Ser	Leu	Glu	Glu	Asn	Arg	Thr	Gly	Met	Tyr	Val		
			580					585					590				
gcc	acg	ctg	gct	ggg	agc	cag	tca	cca	aag	cca	ctg	atg	gtg	cac	atg	1824	
Ala	Thr	Leu	Ala	Gly	Ser	Gln	Ser	Pro	Lys	Pro	Leu	Met	Val	His	Met		
		595					600					605					
cgc	aag	tac	ggg	ggc	atc	acc	agc	ttc	gag	aac	acg	gcc	atc	gag	gtg	1872	
Arg	Lys	Tyr	Gly	Gly	Ile	Thr	Ser	Phe	Glu	Asn	Thr	Ala	Ile	Glu	Val		
	610					615					620						
gac	cgt	gag	att	gca	gag	gag	gag	gag	tcg	atg	atg	tga				1911	
Asp	Arg	Glu	Ile	Ala	Glu	Glu	Glu	Glu	Ser	Met	Met	*					
	625				630				635								

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 <212> PRT  
 <213> Homo sapiens

<400> 96

Met	Lys	Lys	Leu	Gln	Gly	Ala	His	Leu	Arg	Lys	Pro	Val	Thr	Pro	Asp		
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Leu	Leu	Met	Thr	Pro	Ser	Asp	Gln	Gly	Asp	Val	Asp	Leu	Asp	Val	Asp		
			20					25					30				
Phe	Ala	Ala	His	Arg	Gly	Asn	Trp	Thr	Gly	Lys	Leu	Asp	Phe	Leu	Leu		
		35					40					45					
Ser	Cys	Ile	Gly	Tyr	Cys	Val	Gly	Leu	Gly	Asn	Val	Trp	Arg	Phe	Pro		
	50					55					60						
Tyr	Arg	Ala	Tyr	Thr	Asn	Gly	Gly	Gly	Ala	Phe	Leu	Val	Pro	Tyr	Phe		
65					70					75				80			
Leu	Met	Leu	Ala	Ile	Cys	Gly	Ile	Pro	Leu	Phe	Phe	Leu	Glu	Leu	Ser		
				85					90					95			
Leu	Gly	Gln	Phe	Ser	Ser	Leu	Gly	Pro	Leu	Ala	Val	Trp	Lys	Ile	Ser		
		100						105					110				
Pro	Leu	Phe	Lys	Gly	Ala	Gly	Ala	Ala	Met	Leu	Leu	Ile	Val	Gly	Leu		
		115					120					125					
Val	Ala	Ile	Tyr	Tyr	Asn	Met	Ile	Ile	Ala	Tyr	Val	Leu	Phe	Tyr	Leu		
	130					135						140					
Phe	Ala	Ser	Leu	Thr	Ser	Asp	Leu	Pro	Trp	Glu	His	Cys	Gly	Asn	Trp		
145					150					155				160			
Trp	Asn	Thr	Glu	Leu	Cys	Leu	Glu	His	Arg	Val	Ser	Lys	Asp	Gly	Asn		
			165						170					175			
Gly	Ala	Leu	Pro	Leu	Asn	Leu	Thr	Cys	Thr	Val	Ser	Pro	Ser	Glu	Glu		
		180						185					190				
Tyr	Trp	Ser	Arg	Tyr	Val	Leu	His	Ile	Gln	Gly	Ser	Gln	Gly	Ile	Gly		
	195					200						205					
Ser	Pro	Gly	Glu	Ile	Arg	Trp	Asn	Leu	Cys	Leu	Cys	Leu	Leu	Leu	Ala		
	210					215					220						
Trp	Val	Ile	Val	Phe	Leu	Cys	Ile	Leu	Lys	Gly	Val	Lys	Ser	Ser	Gly		
225				230						235					240		
Lys	Val	Val	Tyr	Phe	Thr	Ala	Thr	Phe	Pro	Tyr	Leu	Ile	Leu	Leu	Met		
			245						250					255			
Leu	Leu	Val	Arg	Gly	Val	Thr	Leu	Pro	Gly	Ala	Trp	Lys	Gly	Ile	Gln		
		260						265					270				
Phe	Tyr	Leu	Thr	Pro	Gln	Phe	His	Leu	Leu	Ser	Ser	Lys	Val	Trp			
	275						280					285					
Ile	Glu	Ala	Ala	Leu	Gln	Ile	Phe	Tyr	Ser	Leu	Gly	Val	Gly	Phe	Gly		
	290				295						300						
Gly	Leu	Leu	Thr	Phe	Ala	Ser	Tyr	Asn	Thr	Phe	His	Gln	Asn	Ile	Tyr		

305					310					315				320
Arg	Asp	Thr	Phe	Ile	Val	Thr	Leu	Gly	Asn	Ala	Ile	Thr	Ser	Ile
				325					330					335
Ala	Gly	Phe	Ala	Ile	Phe	Ser	Val	Leu	Gly	Tyr	Met	Ser	Gln	Glu
			340					345					350	
Gly	Val	Pro	Val	Asp	Gln	Val	Ala	Lys	Ala	Gly	Pro	Gly	Leu	Ala
		355					360					365		
Val	Val	Tyr	Pro	Gln	Ala	Met	Thr	Met	Leu	Pro	Leu	Ser	Pro	Phe
	370					375					380			Trp
Ser	Phe	Leu	Phe	Phe	Phe	Met	Leu	Leu	Thr	Leu	Gly	Leu	Asp	Ser
385					390					395				400
Phe	Ala	Phe	Leu	Glu	Thr	Ile	Val	Thr	Ala	Val	Thr	Asp	Glu	Phe
				405					410					415
Tyr	Tyr	Leu	Arg	Pro	Lys	Lys	Ala	Val	Phe	Ser	Gly	Leu	Ile	Cys
			420					425					430	Val
Ala	Met	Tyr	Leu	Met	Gly	Leu	Ile	Leu	Thr	Thr	Asp	Gly	Gly	Met
	435					440						445		Tyr
Trp	Leu	Val	Leu	Leu	Asp	Asp	Tyr	Ser	Ala	Ser	Phe	Gly	Leu	Met
450					455						460			Val
Val	Val	Ile	Thr	Thr	Cys	Leu	Ala	Val	Thr	Arg	Val	Tyr	Gly	Ile
465					470					475				480
Arg	Phe	Cys	Arg	Asp	Ile	His	Met	Met	Leu	Gly	Phe	Lys	Pro	Gly
			485						490					495
Tyr	Phe	Arg	Ala	Cys	Trp	Leu	Phe	Leu	Ser	Pro	Ala	Thr	Leu	Leu
			500					505					510	Ala
Leu	Leu	Val	Tyr	Ser	Ile	Val	Lys	Tyr	Gln	Pro	Ser	Glu	Tyr	Gly
		515					520					525		Ser
Tyr	Arg	Phe	Pro	Pro	Trp	Ala	Glu	Leu	Leu	Gly	Ile	Leu	Met	Gly
	530				535						540			Leu
Leu	Ser	Cys	Leu	Met	Ile	Pro	Ala	Gly	Met	Leu	Val	Ala	Val	Leu
545				550					555					560
Glu	Glu	Gly	Ser	Leu	Trp	Glu	Arg	Leu	Gln	Ala	Ser	Arg	Pro	Ala
				565					570					575
Met	Asp	Trp	Gly	Pro	Ser	Leu	Glu	Glu	Asn	Arg	Thr	Gly	Met	Tyr
			580					585				590		Val
Ala	Thr	Leu	Ala	Gly	Ser	Gln	Ser	Pro	Lys	Pro	Leu	Met	Val	His
	595					600						605		Met
Arg	Lys	Tyr	Gly	Gly	Ile	Thr	Ser	Phe	Glu	Asn	Thr	Ala	Ile	Glu
	610					615					620			Val
Asp	Arg	Glu	Ile	Ala	Glu	Glu	Glu	Glu	Ser	Met	Met			
625					630					635				

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 cattcattga atctgcggaat ttcatgacgt ctctctgcgt ggtccaccac ttttctccta 180  
 accgggggatt tttttttttt ttctgccaact cttatctttc ccacttcat tccaccagat 240  
 ctccctcccc cgctccctgcc caaacgcgcg cccctccgcc cctcccttgg gccagcgcc 300  
 cagccctgct ctccgcgctc ggccagaggg agccagtcgg gagacggccg cacctggctg 360  
 gagaggctgg gcgggcgagg ggggtggagac ccgcggacgc cggaagccg gacctggagc 420  
 cggagcagcc gcgagcagaa tggagtctcc taacagcctc tcggtgctga tgtgaaattt 480

gaccatctga ttccagtttt tttcttttcc ttttcttttt tgcatttcct tccctcgcca 540  
tccgtcgtgt agtgaattgt tcagtcttgc tccgtttcaa gagaggagat catgattgag 600  
tgaagccacc ccgtccgcag ccaggaaaag cacaaagaag aaactgcaac a atg gcc 657  
Met Ala  
1

aag ctg aca gaa tcc atg act aac gtc ctg gag ggc gac tcc atg gat 705  
Lys Leu Thr Glu Ser Met Thr Asn Val Leu Glu Gly Asp Ser Met Asp  
5 10 15

cag gac gtc gaa agc cca gtg gcc att cac cag cca aag ttg cct aag 753  
Gln Asp Val Glu Ser Pro Val Ala Ile His Gln Pro Lys Leu Pro Lys  
20 25 30

cag gcc agg gat gac ctg cca aga cac atc agc cga gat cgg acc aaa 801  
Gln Ala Arg Asp Asp Leu Pro Arg His Ile Ser Arg Asp Arg Thr Lys  
35 40 45 50

agg aaa atc cag agg tac gtg agg aaa gac gga aag tgc aat gtt cat 849  
Arg Lys Ile Gln Arg Tyr Val Arg Lys Asp Gly Lys Cys Asn Val His  
55 60 65

cac ggc aac gtg agg gag acc tat cgc tac ctg acc gat atc ttc acc 897  
His Gly Asn Val Arg Glu Thr Tyr Arg Tyr Leu Thr Asp Ile Phe Thr  
70 75 80

aca tta gtg gac ctg aag tgg aga ttc aac cta ttg att ttt gtc atg 945  
Thr Leu Val Asp Leu Lys Trp Arg Phe Asn Leu Leu Ile Phe Val Met  
85 90 95

gtt tac aca gtg acc tgg ctc ttt ttt gga atg atc tgg tgg ttg atc 993  
Val Tyr Thr Val Thr Trp Leu Phe Phe Gly Met Ile Trp Trp Leu Ile  
100 105 110

gca tac ata cgg gga gac atg gac cac ata gag gac ccc tcc tgg act 1041  
Ala Tyr Ile Arg Gly Asp Met Asp His Ile Glu Asp Pro Ser Trp Thr  
115 120 125 130

cct tgt gtt acc aac ctc aac ggg ttc gtc tct gct ttt tta ttc tca 1089  
Pro Cys Val Thr Asn Leu Asn Gly Phe Val Ser Ala Phe Leu Phe Ser  
135 140 145

ata gag aca gaa acc acc att ggt tat ggc tac cgg gtc atc aca gat 1137  
Ile Glu Thr Glu Thr Thr Ile Gly Tyr Gly Tyr Arg Val Ile Thr Asp  
150 155 160

aaa tgc ccg gag gga att att ctt ctc tta atc caa tct gtg ttg ggg 1185  
Lys Cys Pro Glu Gly Ile Ile Leu Leu Leu Ile Gln Ser Val Leu Gly  
165 170 175

tcc att gtc aat gca ttc atg gtg gga tgc atg ttt gta aaa atc tct 1233  
Ser Ile Val Asn Ala Phe Met Val Gly Cys Met Phe Val Lys Ile Ser  
180 185 190

caa ccc aag aag agg gca gag acc ctg gtc ttt tcc acc cat gca gtg 1281  
Gln Pro Lys Lys Arg Ala Glu Thr Leu Val Phe Ser Thr His Ala Val  
195 200 205 210

atc tcc atg cgg gat ggg aaa ctg tgc ctg atg ttc cgg gta ggg gac 1329  
Ile Ser Met Arg Asp Gly Lys Leu Cys Leu Met Phe Arg Val Gly Asp

	215	220	225	
ctt agg aat tcc cac att gtg gag gct tcc atc aga gcc aag ttg atc				1377
Leu Arg Asn Ser His Ile Val Glu Ala Ser Ile Arg Ala Lys Leu Ile				
	230	235	240	
aaa tcc aaa cag acc tcg gag ggg gag ttc atc ccg ttg aac cag acg				1425
Lys Ser Lys Gln Thr Ser Glu Gly Glu Phe Ile Pro Leu Asn Gln Thr				
	245	250	255	
gat atc aac gta ggg tat tac acg ggg gat gac cgt ctg ttt ctg gtg				1473
Asp Ile Asn Val Gly Tyr Tyr Thr Gly Asp Asp Arg Leu Phe Leu Val				
	260	265	270	
tca ccg ctg atc att agc cat gaa att aac caa cag agt cct ttc tgg				1521
Ser Pro Leu Ile Ile Ser His Glu Ile Asn Gln Gln Ser Pro Phe Trp				
	275	280	285	290
gag atc tcc aaa gcc cag ctg ccc aaa gag gaa ctg gaa att gtg gtc				1569
Glu Ile Ser Lys Ala Gln Leu Pro Lys Glu Glu Leu Glu Ile Val Val				
	295	300	305	
atc cta gaa gga atg gtg gaa gcc aca ggg atg aca tgc caa gct cga				1617
Ile Leu Glu Gly Met Val Glu Ala Thr Gly Met Thr Cys Gln Ala Arg				
	310	315	320	
agc tcc tac atc acc agt gag atc ctg tgg ggt tac ccg ttc aca cct				1665
Ser Ser Tyr Ile Thr Ser Glu Ile Leu Trp Gly Tyr Arg Phe Thr Pro				
	325	330	335	
gtc ctg acc ctg gag gat ggg ttc tac gaa gtt gac tac aac agc ttc				1713
Val Leu Thr Leu Glu Asp Gly Phe Tyr Glu Val Asp Tyr Asn Ser Phe				
	340	345	350	
cat gag acc tat gag acc agc acc cca tcc ctt agt gcc aaa gag ctg				1761
His Glu Thr Tyr Glu Thr Ser Thr Pro Ser Leu Ser Ala Lys Glu Leu				
	355	360	365	370
gcc gag tta gcc agc agg gca gag ctg ccc ctg agt tgg tct gta tcc				1809
Ala Glu Leu Ala Ser Arg Ala Glu Leu Pro Leu Ser Trp Ser Val Ser				
	375	380	385	
agc aaa ctc aac caa cat gca gaa ctg gag act gaa gag gaa gaa aag				1857
Ser Lys Leu Asn Gln His Ala Glu Leu Glu Thr Glu Glu Glu Glu Lys				
	390	395	400	
aac ctc gaa gag caa aca gaa aga aat ggt gat gtg gca aac ctg gag				1905
Asn Leu Glu Glu Gln Thr Glu Arg Asn Gly Asp Val Ala Asn Leu Glu				
	405	410	415	
aat gaa tcc aaa gtt tag tgcctagct gggcaaacc ttctcttctc				1953
Asn Glu Ser Lys Val *				
	420			

cccccaacac aatcttttct tgtctctcat tctcttttctt tttctgtctc tcttgctttg 2013

ttcttttattt gtttatattt aattttttaca tgaccagaaa acaaattcttc aaggtgtaaa 2073

atatctacct gccctctctc agttattcag attgacaagg tagacatgga tttgatgaaa 2133

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Ile Ser Gln Pro Lys Lys Arg Ala Glu Thr Leu Val Phe Ser Thr His
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Phe Tyr Arg Lys Cys Pro Arg Ile Ile Gln Asn Gly Ala Ile Phe Gln	
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Pro	Arg	Ala	Thr	Gly	Arg	Thr	Lys	Arg	Cys	Gln	Pro	Arg	Asp	Val	Thr

	995		1000		1005										
Lys	Lys	Thr	Cys	Asn	Ser	Asn	Asp	Gly	Lys	Lys	Lys	Gly	Met	Gly	Lys
	1010					1015					1020				
Lys	Lys	Thr	Asp	Pro	Gly	Arg	Gly	Arg	Glu	Ile	Gln	Gly	Ile	Phe	Phe
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Lys	Glu	Asp	Ser	His	Lys	Glu	Ser	Asn	Asp	Cys	Ser	Cys	Gly	Gly	
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Trp Thr Ala Leu Ser Asn Phe Ser Met Pro Ser Phe Pro Gly Gly Ser	
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atg ttc cgc cgc acc aag agc tgc cgc acc agt aat cgg aaa agc ctc	150
Met Phe Arg Arg Thr Lys Ser Cys Arg Thr Ser Asn Arg Lys Ser Leu	
	25 30 35
atc ctg acc agc act tca ccc acg cta ccg aga ccc cac tcc ccg ctg	198
Ile Leu Thr Ser Thr Ser Pro Thr Leu Pro Arg Pro His Ser Pro Leu	
	40 45 50
cca ggt cac cta ggc agc agt ccc ctg gac agc ccc cga aac ttc tcc	246
Pro Gly His Leu Gly Ser Ser Pro Leu Asp Ser Pro Arg Asn Phe Ser	
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ccc aac acc ccc gcc cac ttc tcg ttt gcc tcc tcc cga agg gcg gac	294
Pro Asn Thr Pro Ala His Phe Ser Phe Ala Ser Ser Arg Arg Ala Asp	
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gga cgc cgg tgg tct ctg gcc tcg ctc cct tca tct ggc tat ggc acc	342
Gly Arg Arg Trp Ser Leu Ala Ser Leu Pro Ser Ser Gly Tyr Gly Thr	
	90 95 100
aac acg ccc agt tcc acc gtc tcg tcc tcc tgc tcc tcc cag gag cgc	390
Asn Thr Pro Ser Ser Thr Val Ser Ser Ser Cys Ser Ser Gln Glu Arg	
	105 110 115
ctt cac cag ctg ccc tac cag ccc acg gtg gac gag ctc cac ttc ctc	438
Leu His Gln Leu Pro Tyr Gln Pro Thr Val Asp Glu Leu His Phe Leu	
	120 125 130
tcc aaa cac ttc ggg agc acc gag agc atc aca gac gag gat ggt ggc	486
Ser Lys His Phe Gly Ser Thr Glu Ser Ile Thr Asp Glu Asp Gly Gly	
	135 140 145
cgt cgc tcc cca gcc gtg cgg ccc cgc tca cgg agc ctc agc ccc ggg	534

Arg	Arg	Ser	Pro	Ala	Val	Arg	Pro	Arg	Ser	Arg	Ser	Leu	Ser	Pro	Gly	
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cgc	tcc	ccc	tcc	tcc	tac	gac	aac	gag	atc	gtg	atg	atg	aat	cac	gtc	582
Arg	Ser	Pro	Ser	Ser	Tyr	Asp	Asn	Glu	Ile	Val	Met	Met	Asn	His	Val	
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tac	aag	gag	agg	ttc	ccg	aag	gcc	act	gcg	cag	atg	gag	gag	aag	ctg	630
Tyr	Lys	Glu	Arg	Phe	Pro	Lys	Ala	Thr	Ala	Gln	Met	Glu	Glu	Lys	Leu	
			185					190					195			
cgc	gac	ttc	acc	cgc	gcc	tac	gaa	ccc	gac	agc	gtt	ctg	cct	ctg	gcc	678
Arg	Asp	Phe	Thr	Arg	Ala	Tyr	Glu	Pro	Asp	Ser	Val	Leu	Pro	Leu	Ala	
		200					205					210				
gat	ggc	gtg	ctc	agc	ttc	atc	cac	cac	cag	atc	atc	gag	ctg	gcc	cgg	726
Asp	Gly	Val	Leu	Ser	Phe	Ile	His	His	Gln	Ile	Ile	Glu	Leu	Ala	Arg	
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gac	tgc	ctg	acc	aag	tcc	cgt	gac	ggc	ctc	atc	acc	acg	gtc	tac	ttc	774
Asp	Cys	Leu	Thr	Lys	Ser	Arg	Asp	Gly	Leu	Ile	Thr	Thr	Val	Tyr	Phe	
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tat	gaa	ttg	cag	gag	aac	ctg	gag	aag	ctc	ctt	caa	gac	gcc	tat	gaa	822
Tyr	Glu	Leu	Gln	Glu	Asn	Leu	Glu	Lys	Leu	Leu	Gln	Asp	Ala	Tyr	Glu	
				250					255					260		
cgc	tct	gag	agc	ttg	gag	gtg	gcc	ttc	gtt	act	cag	ctg	gtg	aag	aag	870
Arg	Ser	Glu	Ser	Leu	Glu	Val	Ala	Phe	Val	Thr	Gln	Leu	Val	Lys	Lys	
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ttg	ctt	att	atc	atc	tca	cgc	cct	gcg	agg	ctg	ctg	gag	tgc	ctg	gaa	918
Leu	Leu	Ile	Ile	Ile	Ser	Arg	Pro	Ala	Arg	Leu	Leu	Glu	Cys	Leu	Glu	
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ttc	aac	ccc	gag	gag	ttc	tac	cac	ctg	ctg	gag	gcg	gcc	gaa	gga	cac	966
Phe	Asn	Pro	Glu	Glu	Phe	Tyr	His	Leu	Leu	Glu	Ala	Ala	Glu	Gly	His	
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gcc	aag	gag	ggc	cac	ctt	gtg	aag	acg	gac	atc	ccc	cgc	tac	atc	atc	1014
Ala	Lys	Glu	Gly	His	Leu	Val	Lys	Thr	Asp	Ile	Pro	Arg	Tyr	Ile	Ile	
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cgc	cag	ctg	ggc	ctc	acc	cgt	gac	ccc	ttt	cca	gac	gtg	gtg	cat	ctg	1062
Arg	Gln	Leu	Gly	Leu	Thr	Arg	Asp	Pro	Phe	Pro	Asp	Val	Val	His	Leu	
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gag	gaa	cag	gac	agt	ggc	ggc	tcc	aac	acc	cct	gag	caa	gac	gat	ctc	1110
Glu	Glu	Gln	Asp	Ser	Gly	Gly	Ser	Asn	Thr	Pro	Glu	Gln	Asp	Asp	Leu	
			345				350						355			
tct	gag	ggc	cgc	agc	agc	aag	gcc	aag	aaa	ccg	ccg	ggg	gag	aat	gac	1158
Ser	Glu	Gly	Arg	Ser	Ser	Lys	Ala	Lys	Lys	Pro	Pro	Gly	Glu	Asn	Asp	
		360					365					370				
ttc	gat	acc	atc	aag	ctc	ata	agc	aac	ggc	gcc	tac	ggc	gct	gtc	tac	1206
Phe	Asp	Thr	Ile	Lys	Leu	Ile	Ser	Asn	Gly	Ala	Tyr	Gly	Ala	Val	Tyr	
	375					380					385					
ctg	gtg	cgg	cac	cgc	gac	acg	cgg	cag	cgc	ttt	gcc	atg	aaa	aag	atc	1254
Leu	Val	Arg	His	Arg	Asp	Thr	Arg	Gln	Arg	Phe	Ala	Met	Lys	Lys	Ile	

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aac aag cag aac ttg atc ctc cgc aac cag atc cag cag gcc ttt gtg				1302
Asn Lys Gln Asn Leu Ile Leu Arg Asn Gln Ile Gln Gln Ala Phe Val				
410		415	420	
gag cgc gat atc ctc acc ttc gcc gag aac ccg ttt gtg gtc ggc atg				1350
Glu Arg Asp Ile Leu Thr Phe Ala Glu Asn Pro Phe Val Val Gly Met				
425		430	435	
ttc tgc tcc ttt gag act cgg cgc cac ctc tgc atg gtc atg gaa tat				1398
Phe Cys Ser Phe Glu Thr Arg Arg His Leu Cys Met Val Met Glu Tyr				
440		445	450	
gtg gaa ggc ggc gac tgt gcc acc ctg ctg aag aat att gga gcg ctg				1446
Val Glu Gly Gly Asp Cys Ala Thr Leu Leu Lys Asn Ile Gly Ala Leu				
455		460	465	
ccc gta gag atg gcc cgc atg tac ttt gct gag acg gtg cta gcc ctg				1494
Pro Val Glu Met Ala Arg Met Tyr Phe Ala Glu Thr Val Leu Ala Leu				
470		475	480	485
gag tat ttg cac aac tat ggc atc gtg cac cgc gac ctc aag cct gac				1542
Glu Tyr Leu His Asn Tyr Gly Ile Val His Arg Asp Leu Lys Pro Asp				
490		495	500	
aac ctc ctt atc acc tcc atg ggt cac atc aag ctc aca gat ttc ggc				1590
Asn Leu Leu Ile Thr Ser Met Gly His Ile Lys Leu Thr Asp Phe Gly				
505		510	515	
ctc tcc aag atg ggg ctc atg agc ctc acc acc aac tta tat gaa ggc				1638
Leu Ser Lys Met Gly Leu Met Ser Leu Thr Thr Asn Leu Tyr Glu Gly				
520		525	530	
cac atc gag aag gac gcc cga gag ttc ctg gac aaa cag gtg tgt ggc				1686
His Ile Glu Lys Asp Ala Arg Glu Phe Leu Asp Lys Gln Val Cys Gly				
535		540	545	
acc cca gag tac atc gcg ccc gag gtc atc ctg cgt caa ggc tac ggc				1734
Thr Pro Glu Tyr Ile Ala Pro Glu Val Ile Leu Arg Gln Gly Tyr Gly				
550		555	560	565
aag cca gtg gac tgg tgg gct atg ggg atc atc ctc tac gag ttc ctg				1782
Lys Pro Val Asp Trp Trp Ala Met Gly Ile Ile Leu Tyr Glu Phe Leu				
570		575	580	
gtg ggc tgt gtg ccc ttc ttc gga gac aca cca gag gag cta ttt gga				1830
Val Gly Cys Val Pro Phe Phe Gly Asp Thr Pro Glu Glu Leu Phe Gly				
585		590	595	
cag gtc atc agt gat gac atc ctg tgg ccc gag ggg gat gag gcc cta				1878
Gln Val Ile Ser Asp Asp Ile Leu Trp Pro Glu Gly Asp Glu Ala Leu				
600		605	610	
cct acg gag gcc caa ctc ctc ata tcc agc ctc ctg cag acc aac cct				1926
Pro Thr Glu Ala Gln Leu Leu Ile Ser Ser Leu Leu Gln Thr Asn Pro				
615		620	625	
ctg gtc agg ctt ggg gca ggc ggc gct ttt gag gtg aag cag cac agt				1974
Leu Val Arg Leu Gly Ala Gly Gly Ala Phe Glu Val Lys Gln His Ser				
630		635	640	645

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Phe Phe Arg Asp Leu Asp Trp Thr Gly Leu Leu Arg Gln Lys Ala Glu	
650 655 660	
ttc atc ccc cac cta gag tcg gaa gat gac act agc tac ttt gac acc	2070
Phe Ile Pro His Leu Glu Ser Glu Asp Asp Thr Ser Tyr Phe Asp Thr	
665 670 675	
cgc tca gac agg tat cac cac gtg aac tcc tat gac gag gat gac acg	2118
Arg Ser Asp Arg Tyr His His Val Asn Ser Tyr Asp Glu Asp Asp Thr	
680 685 690	
acg gag gag gag ccc gtg gaa atc cgc cag ttc tct tcc tgc tct ccg	2166
Thr Glu Glu Glu Pro Val Glu Ile Arg Gln Phe Ser Ser Cys Ser Pro	
695 700 705	
cgc ttc agc aag gtg tat agc agc atg gag cag ctg tcg cag cac gag	2214
Arg Phe Ser Lys Val Tyr Ser Ser Met Glu Gln Leu Ser Gln His Glu	
710 715 720 725	
ccc aag acc cca gta gca gct gca ggg agc agc aag cgg gag ccg agc	2262
Pro Lys Thr Pro Val Ala Ala Ala Gly Ser Ser Lys Arg Glu Pro Ser	
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acc aag ggc ccc gag gag aag gtg gcc ggc aag cgg gag ggg ctg ggc	2310
Thr Lys Gly Pro Glu Glu Lys Val Ala Gly Lys Arg Glu Gly Leu Gly	
745 750 755	
ggc ctg acc ctg cgt gag aag acc tgg aga ggg ggc tct ccg gag atc	2358
Gly Leu Thr Leu Arg Glu Lys Thr Trp Arg Gly Gly Ser Pro Glu Ile	
760 765 770	
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Lys Arg Phe Ser Ala Ser Glu Ala Ser Phe Leu Glu Gly Glu Ala Ser	
775 780 785	
ccc cct ttg ggc gcc cgc cgc cgt ttc tcg gcg ctg ctg gag ccc agc	2454
Pro Pro Leu Gly Ala Arg Arg Arg Phe Ser Ala Leu Leu Glu Pro Ser	
790 795 800 805	
cgc ttc agc gcc ccc caa gag gac gag gat gag gcc cgg ctg cgc agg	2502
Arg Phe Ser Ala Pro Gln Glu Asp Glu Asp Glu Ala Arg Leu Arg Arg	
810 815 820	
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Pro Pro Arg Pro Ser Ser Asp Pro Ala Gly Ser Leu Asp Ala Arg Ala	
825 830 835	
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Pro Lys Glu Glu Thr Gln Gly Glu Gly Thr Ser Ser Ala Gly Asp Ser	
840 845 850	
gag gcc act gac cgt cca cgc cca ggt gac ctc tgc cca ccc tcg aag	2646
Glu Ala Thr Asp Arg Pro Arg Pro Gly Asp Leu Cys Pro Pro Ser Lys	
855 860 865	
gat ggg gat gca tca ggc cca agg gct acc aat gac ttg gtt ctg cgc	2694
Asp Gly Asp Ala Ser Gly Pro Arg Ala Thr Asn Asp Leu Val Leu Arg	
870 875 880 885	



cgg gcg cgg cac cag cag atg tca ggg gat gtg gca gta gag aag agg	2742
Arg Ala Arg His Gln Gln Met Ser Gly Asp Val Ala Val Glu Lys Arg	
890 895 900	
cct tct cga act ggg ggc aaa gtc atc aaa tca gcc tca gcc act gcc	2790
Pro Ser Arg Thr Gly Gly Lys Val Ile Lys Ser Ala Ser Ala Thr Ala	
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tta tct gtc atg att cct gca gtg gac cca cat gga agt tca ccc ctt	2838
Leu Ser Val Met Ile Pro Ala Val Asp Pro His Gly Ser Ser Pro Leu	
920 925 930	
gct agt ccc atg tct cca cga tct ctg tcc tcc aac cca tcc tca cgg	2886
Ala Ser Pro Met Ser Pro Arg Ser Leu Ser Ser Asn Pro Ser Ser Arg	
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Asp Ser Ser Pro Ser Arg Asp Tyr Ser Pro Ala Val Ser Gly Leu Arg	
950 955 960 965	
tcc ccc atc acc atc cag cgc tcg ggc aag aag tat ggc ttc aca ctg	2982
Ser Pro Ile Thr Ile Gln Arg Ser Gly Lys Lys Tyr Gly Phe Thr Leu	
970 975 980	
cgt gcc atc cgt gtc tac atg ggt gac acg gat gtc tat agt gtc cac	3030
Arg Ala Ile Arg Val Tyr Met Gly Asp Thr Asp Val Tyr Ser Val His	
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cac att gtc tgg cat gtg gag gaa gga ggc cca gcc cag gag gca gga	3078
His Ile Val Trp His Val Glu Glu Gly Gly Pro Ala Gln Glu Ala Gly	
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Leu Cys Ala Gly Asp Leu Ile Thr His Val Asn Gly Glu Pro Val His	
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Gly Met Val His Pro Glu Val Val Glu Leu Ile Leu Lys Ser Gly Asn	
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Lys Val Ala Val Thr Thr Pro Phe Glu Asn Thr Ser Ile Arg Ile	
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Gly Pro Ala Arg Arg Ser Ser Tyr Lys Ala Lys Met Ala Arg Arg Asn	
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Lys Arg Pro Ser Ala Lys Glu Gly Gln Glu Ser Lys Lys Arg Ser Ser	
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Leu Phe Arg Lys Ile Thr Lys Gln Ser Asn Leu Leu His Thr Ser Arg	
1095 1100 1105	
tcg ctg tcg tcg ctg aac cgc tcg ctg tca tcc agc gat agt ctc ccg	3414
Ser Leu Ser Ser Leu Asn Arg Ser Leu Ser Ser Ser Asp Ser Leu Pro	
1110 1115 1120 1125	

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Gly Ser Pro Thr His Gly Leu Pro Ala Arg Ser Pro Thr His Ser Tyr	
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cgc tcc acg cct gac tcc gcc tac cta ggc gcc tca tcc cag agc agc	3510
Arg Ser Thr Pro Asp Ser Ala Tyr Leu Gly Ala Ser Ser Gln Ser Ser	
1145 1150 1155	
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Ser Pro Ala Ser Ser Thr Pro Asn Ser Pro Ala Ser Ser Ala Ser His	
1160 1165 1170	
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His Ile Arg Pro Ser Thr Leu His Gly Leu Ser Pro Lys Leu His Arg	
1175 1180 1185	
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Gln Tyr Arg Ser Ala Arg Cys Lys Ser Ala Gly Asn Ile Pro Leu Ser	
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Pro Leu Ala His Thr Pro Ser Pro Thr Gln Ala Ser Pro Pro Pro Leu	
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Pro Gly His Thr Val Gly Ser Ser His Thr Thr Gln Ser Phe Pro Ala	
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Lys Leu His Ser Ser Pro Pro Val Val Arg Pro Arg Pro Lys Ser Ala	
1240 1245 1250	
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Glu Pro Pro Arg Ser Pro Leu Leu Lys Arg Val Gln Ser Ala Glu Lys	
1255 1260 1265	
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Leu Gly Ala Ser Leu Ser Ala Asp Lys Lys Gly Ala Leu Arg Lys His	
1270 1275 1280 1285	
agc ctc gag gtg ggc cac ccg gat ttc cgc aag gac ttc cat ggc gag	3942
Ser Leu Glu Val Gly His Pro Asp Phe Arg Lys Asp Phe His Gly Glu	
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Leu Ala Leu His Ser Leu Ala Glu Ser Asp Gly Glu Thr Pro Pro Val	
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Glu Gly Leu Gly Ala Pro Arg Gln Val Ala Val Arg Arg Leu Gly Arg	
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1335 1340 1345	
gcc tcc agg cca cca gtg tcg agc aag gag aag gaa tcc ccg ggg ggc	4134
Ala Ser Arg Pro Pro Val Ser Ser Lys Glu Lys Glu Ser Pro Gly Gly	
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gcc gag gcg tgc acc cca ccc cgc gcg acg acc ccc ggt ggc cgg acc 4182  
Ala Glu Ala Cys Thr Pro Pro Arg Ala Thr Thr Pro Gly Gly Arg Thr  
1370 1375 1380

ctg gag cgg gac gtc ggc tgc acg cgg cat cag agc gtg cag acg gag 4230  
Leu Glu Arg Asp Val Gly Cys Thr Arg His Gln Ser Val Gln Thr Glu  
1385 1390 1395

gat ggc act ggc ggg atg gcc agg gct gtg gcc aag gcg gcg ctg agc 4278  
Asp Gly Thr Gly Gly Met Ala Arg Ala Val Ala Lys Ala Ala Leu Ser  
1400 1405 1410

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1480 1485 1490

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Pro Arg Ser Lys Pro Ala Ser Pro Lys Leu Ser Pro Glu Pro Gln Thr  
1495 1500 1505

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Pro Ser Leu Ala Pro Ala Lys Cys Ser Ala Pro Ser Ser Ala Val Thr  
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Gly Leu Thr Ser Arg Cys Pro Ala Glu Ala Val Pro Pro Ala Gly Leu  
1545 1550 1555

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Thr Lys Lys Gly Val Ser Ser Pro Ala Pro Pro Gly Pro \*  
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<400> 102

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Phe	Pro	Gly	Gly	Ser	Met	Phe	Arg	Arg	Thr	Lys	Ser	Cys	Arg	Thr	Ser
		20						25					30		
Asn	Arg	Lys	Ser	Leu	Ile	Leu	Thr	Ser	Thr	Ser	Pro	Thr	Leu	Pro	Arg
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Pro	His	Ser	Pro	Leu	Pro	Gly	His	Leu	Gly	Ser	Ser	Pro	Leu	Asp	Ser
	50					55					60				
Pro	Arg	Asn	Phe	Ser	Pro	Asn	Thr	Pro	Ala	His	Phe	Ser	Phe	Ala	Ser
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Ser	Arg	Arg	Ala	Asp	Gly	Arg	Arg	Trp	Ser	Leu	Ala	Ser	Leu	Pro	Ser
			85					90						95	
Ser	Gly	Tyr	Gly	Thr	Asn	Thr	Pro	Ser	Ser	Thr	Val	Ser	Ser	Ser	Cys
		100						105						110	
Ser	Ser	Gln	Glu	Arg	Leu	His	Gln	Leu	Pro	Tyr	Gln	Pro	Thr	Val	Asp
		115					120					125			
Glu	Leu	His	Phe	Leu	Ser	Lys	His	Phe	Gly	Ser	Thr	Glu	Ser	Ile	Thr
	130					135					140				
Asp	Glu	Asp	Gly	Gly	Arg	Arg	Ser	Pro	Ala	Val	Arg	Pro	Arg	Ser	Arg
145					150					155					160
Ser	Leu	Ser	Pro	Gly	Arg	Ser	Pro	Ser	Ser	Tyr	Asp	Asn	Glu	Ile	Val
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Met	Met	Asn	His	Val	Tyr	Lys	Glu	Arg	Phe	Pro	Lys	Ala	Thr	Ala	Gln
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Met	Glu	Glu	Lys	Leu	Arg	Asp	Phe	Thr	Arg	Ala	Tyr	Glu	Pro	Asp	Ser
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Val	Leu	Pro	Leu	Ala	Asp	Gly	Val	Leu	Ser	Phe	Ile	His	His	Gln	Ile
	210				215						220				
Ile	Glu	Leu	Ala	Arg	Asp	Cys	Leu	Thr	Lys	Ser	Arg	Asp	Gly	Leu	Ile
225					230					235					240
Thr	Thr	Val	Tyr	Phe	Tyr	Glu	Leu	Gln	Glu	Asn	Leu	Glu	Lys	Leu	Leu
			245						250					255	
Gln	Asp	Ala	Tyr	Glu	Arg	Ser	Glu	Ser	Leu	Glu	Val	Ala	Phe	Val	Thr
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Gln	Leu	Val	Lys	Lys	Leu	Leu	Ile	Ile	Ile	Ser	Arg	Pro	Ala	Arg	Leu
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Ala	Ala	Glu	Gly	His	Ala	Lys	Glu	Gly	His	Leu	Val	Lys	Thr	Asp	Ile
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Pro	Arg	Tyr	Ile	Ile	Arg	Gln	Leu	Gly	Leu	Thr	Arg	Asp	Pro	Phe	Pro
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Asp	Val	Val	His	Leu	Glu	Glu	Gln	Asp	Ser	Gly	Gly	Ser	Asn	Thr	Pro
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Glu	Gln	Asp	Asp	Leu	Ser	Glu	Gly	Arg	Ser	Ser	Lys	Ala	Lys	Lys	Pro
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Pro	Gly	Glu	Asn	Asp	Phe	Asp	Thr	Ile	Lys	Leu	Ile	Ser	Asn	Gly	Ala
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Tyr	Gly	Ala	Val	Tyr	Leu	Val	Arg	His	Arg	Asp	Thr	Arg	Gln	Arg	Phe
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Ala	Met	Lys	Lys	Ile	Asn	Lys	Gln	Asn	Leu	Ile	Leu	Arg	Asn	Gln	Ile
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Gln	Gln	Ala	Phe	Val	Glu	Arg	Asp	Ile	Leu	Thr	Phe	Ala	Glu	Asn	Pro
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Met	Val	Met	Glu	Tyr	Val	Glu	Gly	Gly	Asp	Cys	Ala	Thr	Leu	Leu	Lys
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Asn	Ile	Gly	Ala	Leu	Pro	Val	Glu	Met	Ala	Arg	Met	Tyr	Phe	Ala	Glu
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Thr	Val	Leu	Ala	Leu	Glu	Tyr	Leu	His	Asn	Tyr	Gly	Ile	Val	His	Arg



Tyr	Gly	Phe	Thr	Leu	Arg	Ala	Ile	Arg	Val	Tyr	Met	Gly	Asp	Thr	Asp	980	985	990
Val	Tyr	Ser	Val	His	His	Ile	Val	Trp	His	Val	Glu	Glu	Gly	Gly	Pro	995	1000	1005
Ala	Gln	Glu	Ala	Gly	Leu	Cys	Ala	Gly	Asp	Leu	Ile	Thr	His	Val	Asn	1010	1015	1020
Gly	Glu	Pro	Val	His	Gly	Met	Val	His	Pro	Glu	Val	Val	Glu	Leu	Ile	1025	1030	1035
Leu	Lys	Ser	Gly	Asn	Lys	Val	Ala	Val	Thr	Thr	Thr	Pro	Phe	Glu	Asn	1045	1050	1055
Thr	Ser	Ile	Arg	Ile	Gly	Pro	Ala	Arg	Arg	Ser	Ser	Tyr	Lys	Ala	Lys	1060	1065	1070
Met	Ala	Arg	Arg	Asn	Lys	Arg	Pro	Ser	Ala	Lys	Glu	Gly	Gln	Glu	Ser	1075	1080	1085
Lys	Lys	Arg	Ser	Ser	Leu	Phe	Arg	Lys	Ile	Thr	Lys	Gln	Ser	Asn	Leu	1090	1095	1100
Leu	His	Thr	Ser	Arg	Ser	Leu	Ser	Ser	Leu	Asn	Arg	Ser	Leu	Ser	Ser	1105	1110	1115
Ser	Asp	Ser	Leu	Pro	Gly	Ser	Pro	Thr	His	Gly	Leu	Pro	Ala	Arg	Ser	1125	1130	1135
Pro	Thr	His	Ser	Tyr	Arg	Ser	Thr	Pro	Asp	Ser	Ala	Tyr	Leu	Gly	Ala	1140	1145	1150
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Ser	Ser	Ala	Ser	His	His	Ile	Arg	Pro	Ser	Thr	Leu	His	Gly	Leu	Ser	1170	1175	1180
Pro	Lys	Leu	His	Arg	Gln	Tyr	Arg	Ser	Ala	Arg	Cys	Lys	Ser	Ala	Gly	1185	1190	1195
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Ser	Pro	Pro	Pro	Leu	Pro	Gly	His	Thr	Val	Gly	Ser	Ser	His	Thr	Thr	1220	1225	1230
Gln	Ser	Phe	Pro	Ala	Lys	Leu	His	Ser	Ser	Pro	Pro	Val	Val	Arg	Pro	1235	1240	1245
Arg	Pro	Lys	Ser	Ala	Glu	Pro	Pro	Arg	Ser	Pro	Leu	Leu	Lys	Arg	Val	1250	1255	1260
Gln	Ser	Ala	Glu	Lys	Leu	Gly	Ala	Ser	Leu	Ser	Ala	Asp	Lys	Lys	Gly	1265	1270	1275
Ala	Leu	Arg	Lys	His	Ser	Leu	Glu	Val	Gly	His	Pro	Asp	Phe	Arg	Lys	1285	1290	1295
Asp	Phe	His	Gly	Glu	Leu	Ala	Leu	His	Ser	Leu	Ala	Glu	Ser	Asp	Gly	1300	1305	1310
Glu	Thr	Pro	Pro	Val	Glu	Gly	Leu	Gly	Ala	Pro	Arg	Gln	Val	Ala	Val	1315	1320	1325
Arg	Arg	Leu	Gly	Arg	Gln	Glu	Ser	Pro	Leu	Ser	Leu	Gly	Ala	Asp	Pro	1330	1335	1340
Leu	Leu	Pro	Glu	Gly	Ala	Ser	Arg	Pro	Pro	Val	Ser	Ser	Lys	Glu	Lys	1345	1350	1355
Glu	Ser	Pro	Gly	Gly	Ala	Glu	Ala	Cys	Thr	Pro	Pro	Arg	Ala	Thr	Thr	1365	1370	1375
Pro	Gly	Gly	Arg	Thr	Leu	Glu	Arg	Asp	Val	Gly	Cys	Thr	Arg	His	Gln	1380	1385	1390
Ser	Val	Gln	Thr	Glu	Asp	Gly	Thr	Gly	Gly	Met	Ala	Arg	Ala	Val	Ala	1395	1400	1405
Lys	Ala	Ala	Leu	Ser	Pro	Val	Gln	Glu	His	Glu	Thr	Gly	Arg	Arg	Ser	1410	1415	1420
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Ala	Arg	Pro	Gly	Ala	Lys	Ala	Val	Val	Pro	Gln	Pro	Leu	Gly	Ala	Asp	1445	1450	1455
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cag acc ata ccc ttt gtg ctc tca gcc agc ctt cat ggg ggc gac ctg Gln Thr Ile Pro Phe Val Leu Ser Ala Ser Leu His Gly Gly Asp Leu 360 365 370			1158



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Met	Phe	Ser	Pro	Thr	Pro	Asp	Glu	Lys	Met	Phe	Lys	Leu	Leu	Ser	Arg	
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Ala	Tyr	Ala	Asp	Val	His	Pro	Met	Met	Met	Asp	Arg	Ser	Glu	Asn	Arg	
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Cys	Gly	Gly	Asn	Phe	Leu	Lys	Arg	Gly	Ser	Ile	Ile	Asn	Gly	Ala	Asp	
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Trp	Tyr	Ser	Phe	Thr	Gly	Gly	Met	Ser	Asp	Phe	Asn	Tyr	Leu	His	Thr	
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	455					460					465					
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Glu	Glu	Ala	Leu	Tyr	Thr	Leu	Trp	Gln	His	Asn	Lys	Glu	Ser	Leu	Leu	
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Asn	Phe	Val	Glu	Thr	Val	His	Arg	Gly	Ile	Lys	Gly	Val	Val	Thr	Asp	
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Pro	Pro	Gly	Ile	His	Ile	Val	Ile	Ala	Gln	Ala	Pro	Gly	Tyr	Ala	Lys	
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Val	Ile	Lys	Lys	Val	Ile	Ile	Pro	Ala	Arg	Met	Lys	Arg	Ala	Gly	Arg	
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gtg	gac	ttc	att	ctg	caa	cct	ctg	ggg	atg	gga	ccc	aag	aac	ttt	att	1782
Val	Asp	Phe	Ile	Leu	Gln	Pro	Leu	Gly	Met	Gly	Pro	Lys	Asn	Phe	Ile	
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cat	ggg	ctg	cgg	agg	act	ggg	ccc	cac	gac	ccg	ctg	gga	ggt	gcc	agc	1830
His	Gly	Leu	Arg	Arg	Thr	Gly	Pro	His	Asp	Pro	Leu	Gly	Gly	Ala	Ser	
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Ser	Leu	Gly	Glu	Ala	Thr	Glu	Pro	Asp	Pro	Leu	Arg	Ala	Arg	Arg	Gln	
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ctg agc acc cac agg cca cgc tgg ctg ctc aag tac tag ccccggtccc 1975
Leu Ser Thr His Arg Pro Arg Trp Leu Leu Lys Tyr *
630 635 640

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Thr Phe Pro Asn Leu Leu Gln His Arg Ser Trp Glu Val Val Glu Ala
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Ser Ser Glu Tyr Ile Leu Leu Ser Val Leu His Gln Leu Leu Glu Gly
65 70 75 80
Gln Cys Asn Pro Asp Leu Arg Leu Leu Gly Cys Ala Val Leu Ala Pro
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Arg Cys Glu Gly Trp Val Arg Arg Pro Cys Arg His Ile Cys Glu
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Gly Leu Arg Glu Val Cys Gln Pro Ala Phe Asp Ala Ile Asp Met Ala
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Trp Pro Tyr Phe Leu Asp Cys His Arg Tyr Phe Thr Arg Glu Asp Glu
130 135 140
Gly Cys Tyr Asp Pro Leu Glu Lys Leu Arg Gly Gly Leu Glu Ala Asp
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Glu Ala Leu Pro Ser Gly Leu Pro Pro Thr Phe Ile Arg Phe Ser His
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His Ser Tyr Ala Gln Met Val Arg Val Leu Arg Arg Thr Ala Ser Arg
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Cys Ala His Val Ala Arg Thr Tyr Ser Ile Gly Arg Ser Phe Asp Gly
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Val Ala Gly Arg Glu Met Leu Ile Tyr Leu Ala Gln Tyr Leu Cys Ser
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Glu Tyr Leu Leu Gly Asn Pro Arg Ile Gln Arg Leu Leu Asn Thr Thr
260 265 270
Arg Ile His Leu Leu Pro Ser Ile Asn Pro Asp Gly Tyr Glu Val Ala
275 280 285
Ala Ala Glu Gly Ala Gly Tyr Asn Gly Trp Thr Ser Gly Arg Gln Asn
290 295 300
Ala Gln Asn Leu Asp Leu Asn Arg Asn Phe Pro Asp Leu Thr Ser Glu
305 310 315 320
Tyr Tyr Arg Leu Ala Glu Thr Arg Gly Ala Arg Ser Asp His Ile Pro
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Pro	Gln	Glu	Glu	Lys	Met	Phe	Ser	Pro	Thr	Pro	Asp	Glu	Lys	Met	Phe
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Lys	Leu	Leu	Ser	Arg	Ala	Tyr	Ala	Asp	Val	His	Pro	Met	Met	Met	Asp
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Arg	Ser	Glu	Asn	Arg	Cys	Gly	Gly	Asn	Phe	Leu	Lys	Arg	Gly	Ser	Ile
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Ile	Asn	Gly	Ala	Asp	Trp	Tyr	Ser	Phe	Thr	Gly	Gly	Met	Ser	Asp	Phe
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Asn	Tyr	Leu	His	Thr	Asn	Cys	Phe	Glu	Ile	Thr	Val	Glu	Leu	Gly	Cys
	450					455					460				
Val	Lys	Phe	Pro	Pro	Glu	Glu	Ala	Leu	Tyr	Thr	Leu	Trp	Gln	His	Asn
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Lys	Glu	Ser	Leu	Leu	Asn	Phe	Val	Glu	Thr	Val	His	Arg	Gly	Ile	Lys
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Gly	Val	Val	Thr	Asp	Lys	Phe	Gly	Lys	Pro	Val	Lys	Asn	Ala	Arg	Ile
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Tyr	Trp	Arg	Leu	Leu	Pro	Pro	Gly	Ile	His	Ile	Val	Ile	Ala	Gln	Ala
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Pro	Gly	Tyr	Ala	Lys	Val	Ile	Lys	Lys	Val	Ile	Ile	Pro	Ala	Arg	Met
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Lys	Arg	Ala	Gly	Arg	Val	Asp	Phe	Ile	Leu	Gln	Pro	Leu	Gly	Met	Gly
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Pro	Lys	Asn	Phe	Ile	His	Gly	Leu	Arg	Arg	Thr	Gly	Pro	His	Asp	Pro
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	595						600					605			
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Tyr															

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 Met His His Gln Trp Leu Leu Leu Ala  
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Ala Cys Phe Trp Val Ile Phe Met Phe Met Val Ala Ser Lys Phe Ile	
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Thr Leu Thr Phe Lys Asp Pro Asp Val Tyr Ser Ala Lys Gln Glu Phe	
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ctg ttc ctg aca acc atg ccg gaa gtg agg aag ttg cca gaa gag aag	557
Leu Phe Leu Thr Thr Met Pro Glu Val Arg Lys Leu Pro Glu Glu Lys	
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His Ile Pro Glu Glu Leu Lys Pro Thr Gly Lys Glu Leu Pro Asp Ser	
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Gln Leu Val Gln Pro Leu Val Tyr Met Glu Arg Leu Glu Leu Ile Arg	
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Ser Lys Phe Val Leu Asp Arg Ile Phe Val Cys Asp Lys His Lys Ile	
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Leu Phe Cys Gln Thr Pro Lys Val Gly Asn Thr Gln Trp Lys Lys Val	
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Gly Ile Gln Phe Glu Asp Phe Val Arg Tyr Leu Gly Asp Pro Asn His	
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Tyr Val Glu Leu Cys Ala Pro Cys Glu Ile Met Tyr Ser Val Ile Gly
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His His Glu Thr Leu Glu Asp Asp Ala Pro Tyr Ile Leu Lys Glu Ala
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Gly Ile Asp His Leu Val Ser Tyr Pro Thr Ile Pro Pro Gly Ile Thr
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Val Tyr Asn Arg Thr Lys Val Glu His Tyr Phe Leu Gly Ile Ser Lys
315 320 325

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Arg Asp Ile Arg Arg Leu Tyr Ala Arg Phe Glu Gly Asp Phe Lys Leu
330 335 340 345

ttt ggg tac cag aaa cca gac ttt ttg cta aac taa tgcataagac 1467
Phe Gly Tyr Gln Lys Pro Asp Phe Leu Leu Asn *
350 355

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<212> PRT
<213> Homo sapiens

<400> 106
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Met

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Lys Phe Leu Glu Ser Asp Asp Asp Lys Met Val Lys Lys Ile Ala Met  
35 40 45

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Arg Glu Ile Lys Leu Leu Lys Gln Leu Arg His Glu Asn Leu Val Asn  
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Leu Asp Tyr Gln Val Val Gln Lys Tyr Leu Phe Gln Ile Ile Asn Gly  
100 105 110

att gga ttt tgt cac agt cac aat atc ata cac aga gat ata aag cca 864  
Ile Gly Phe Cys His Ser His Asn Ile Ile His Arg Asp Ile Lys Pro  
115 120 125

gag aat ata tta gtc tcc cag tct ggc gtt gtc aag cta tgc gat ttt 912  
Glu Asn Ile Leu Val Ser Gln Ser Gly Val Val Lys Leu Cys Asp Phe  
130 135 140 145

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Glu Met Phe Met Gly Glu Pro Leu Phe Pro Gly Asp Ser Asp Ile Asp  
195 200 205

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Gln Leu Tyr His Ile Met Met Cys Leu Gly Asn Leu Ile Pro Arg His

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Gln Glu Leu Phe Asn Lys Asn Pro Val Phe Ala Gly Val Arg Leu Pro	230	235	240	
gaa atc aag gaa aga gaa cct ctt gaa aga cgc tat cct aag ctc tct				1248
Glu Ile Lys Glu Arg Glu Pro Leu Glu Arg Arg Tyr Pro Lys Leu Ser	245	250	255	
gaa gtg gtg ata gat tta gca aag aaa tgc tta cat att gac ccc gac				1296
Glu Val Val Ile Asp Leu Ala Lys Lys Cys Leu His Ile Asp Pro Asp	260	265	270	
aaa aga ccc ttc tgt gct gag ctc cta cac cat gat ttc ttt caa atg				1344
Lys Arg Pro Phe Cys Ala Glu Leu Leu His His Asp Phe Phe Gln Met	275	280	285	
gat gga ttt gct gag agg ttt tcc caa gaa cta cag tta aaa gta cag				1392
Asp Gly Phe Ala Glu Arg Phe Ser Gln Glu Leu Gln Leu Lys Val Gln	290	295	300	305
aaa gat gcc aga aat gtt tct tta tct aaa aaa tcc caa aac aga aag				1440
Lys Asp Ala Arg Asn Val Ser Leu Ser Lys Lys Ser Gln Asn Arg Lys	310	315	320	
aag gaa aaa gaa aaa gat gat tcc tta gtt gaa gaa aga aaa aca ctt				1488
Lys Glu Lys Glu Lys Asp Asp Ser Leu Val Glu Glu Arg Lys Thr Leu	325	330	335	
gtg gta cag gat acc aat gct gat ccc aaa att aag gat tat aaa cta				1536
Val Val Gln Asp Thr Asn Ala Asp Pro Lys Ile Lys Asp Tyr Lys Leu	340	345	350	
ttt aaa ata aaa ggc tca aaa att gat gga gaa aaa gct gaa aaa ggc				1584
Phe Lys Ile Lys Gly Ser Lys Ile Asp Gly Glu Lys Ala Glu Lys Gly	355	360	365	
aat aga gct tca aat gcc agc tgt ctc cat gac agt agg aca agc cac				1632
Asn Arg Ala Ser Asn Ala Ser Cys Leu His Asp Ser Arg Thr Ser His	370	375	380	385
aac aaa ata gtg cct tca aca agc ctc aaa gac tgc agc aat gtc agc				1680
Asn Lys Ile Val Pro Ser Thr Ser Leu Lys Asp Cys Ser Asn Val Ser	390	395	400	
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Val Asp His Thr Arg Asn Pro Ser Val Ala Ile Pro Pro Leu Thr His	405	410	415	
aat ctt tct gca gtt gct ccc agc att aat tct gga atg ggg act gag				1776
Asn Leu Ser Ala Val Ala Pro Ser Ile Asn Ser Gly Met Gly Thr Glu	420	425	430	
act ata cca att cag ggt tac aga gtg gat gag aaa act aag aag tgt				1824
Thr Ile Pro Ile Gln Gly Tyr Arg Val Asp Glu Lys Thr Lys Lys Cys	435	440	445	
tct att cca ttt gtt aaa ccg aac aga cat tcc cca tca ggc att tat				1872
Ser Ile Pro Phe Val Lys Pro Asn Arg His Ser Pro Ser Gly Ile Tyr	450	455	460	465



aac att aat gtg acc aca tta gta tca gga cct ccc ctg tca gat gat 1920  
 Asn Ile Asn Val Thr Thr Leu Val Ser Gly Pro Pro Leu Ser Asp Asp  
                   470                                  475                                  480

tca ggg gct gat ttg cct caa atg gaa cac cag cac tga gaaccatttt 1969  
 Ser Gly Ala Asp Leu Pro Gln Met Glu His Gln His \*  
                   485                                  490

ggttctgaac tggatgatgc tcttgcaactt gagatgacat cttcttgacag caagaaaaaa 2029  
 aaaaaaaaaa aaaaaaaaaa aacaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2089  
 aaaaaa 2095

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 <213> Homo sapiens

<400> 108  
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                   20                                  25                                  30  
 Lys Lys Phe Leu Glu Ser Asp Asp Asp Lys Met Val Lys Lys Ile Ala  
                   35                                  40                                  45  
 Met Arg Glu Ile Lys Leu Leu Lys Gln Leu Arg His Glu Asn Leu Val  
                   50                                  55                                  60  
 Asn Leu Leu Glu Val Cys Lys Lys Lys Lys Arg Trp Tyr Leu Val Phe  
                   65                                  70                                  75                                  80  
 Glu Phe Val Asp His Thr Ile Leu Asp Asp Leu Glu Leu Phe Pro Asn  
                   85                                  90                                  95  
 Gly Leu Asp Tyr Gln Val Val Gln Lys Tyr Leu Phe Gln Ile Ile Asn  
                   100                                  105                                  110  
 Gly Ile Gly Phe Cys His Ser His Asn Ile Ile His Arg Asp Ile Lys  
                   115                                  120                                  125  
 Pro Glu Asn Ile Leu Val Ser Gln Ser Gly Val Val Lys Leu Cys Asp  
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 Phe Gly Phe Ala Arg Thr Leu Ala Ala Pro Gly Glu Val Tyr Thr Asp  
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 Tyr Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp  
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 Val Lys Tyr Gly Lys Ala Val Asp Val Trp Ala Ile Gly Cys Leu Val  
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 Thr Glu Met Phe Met Gly Glu Pro Leu Phe Pro Gly Asp Ser Asp Ile  
                   195                                  200                                  205  
 Asp Gln Leu Tyr His Ile Met Met Cys Leu Gly Asn Leu Ile Pro Arg  
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 His Gln Glu Leu Phe Asn Lys Asn Pro Val Phe Ala Gly Val Arg Leu  
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 Ser Glu Val Val Ile Asp Leu Ala Lys Lys Cys Leu His Ile Asp Pro  
                   260                                  265                                  270  
 Asp Lys Arg Pro Phe Cys Ala Glu Leu Leu His His Asp Phe Phe Gln  
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Leu Val Val Gln Asp Thr Asn Ala Asp Pro Lys Ile Lys Asp Tyr Lys  
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 Gly Asn Arg Ala Ser Asn Ala Ser Cys Leu His Asp Ser Arg Thr Ser  
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 His Asn Lys Ile Val Pro Ser Thr Ser Leu Lys Asp Cys Ser Asn Val  
                   385                  390                  395                  400  
 Ser Val Asp His Thr Arg Asn Pro Ser Val Ala Ile Pro Pro Leu Thr  
                   405                  410                  415  
 His Asn Leu Ser Ala Val Ala Pro Ser Ile Asn Ser Gly Met Gly Thr  
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 Glu Thr Ile Pro Ile Gln Gly Tyr Arg Val Asp Glu Lys Thr Lys Lys  
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 Cys Ser Ile Pro Phe Val Lys Pro Asn Arg His Ser Pro Ser Gly Ile  
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 Tyr Asn Ile Asn Val Thr Thr Leu Val Ser Gly Pro Pro Leu Ser Asp  
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 Asp Ser Gly Ala Asp Leu Pro Gln Met Glu His Gln His  
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 Pro Gly Glu Phe Glu Ser Lys Tyr Phe Glu Phe His Gly Val Arg Leu  
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 Pro Pro Phe Cys Arg Gly Lys Met Glu Glu Ile Ala Asn Phe Pro Val  
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 Arg Pro Ser Asp Val Trp Ile Val Thr Tyr Pro Lys Ser Gly Thr Ser  
                   45                                  50                                  55  
  
 ttg ctg cag gag gtg gtc tac ttg gtg agc cag ggc gct gac ccc gat 245  
 Leu Leu Gln Glu Val Val Tyr Leu Val Ser Gln Gly Ala Asp Pro Asp  
                   60                                  65                                  70                                  75  
  
 gag atc ggc ttg atg aac atc gac gag cag ctc ccg gtc ctg gag tac 293  
 Glu Ile Gly Leu Met Asn Ile Asp Glu Gln Leu Pro Val Leu Glu Tyr  
                   80                                  85                                  90  
  
 cca cag ccg ggc ctg gac atc atc aag gaa ctg acc tct ccc cgc ctc 341  
 Pro Gln Pro Gly Leu Asp Ile Ile Lys Glu Leu Thr Ser Pro Arg Leu  
                   95                                  100                                  105  
  
 atc aag agc cac ctg ccc tac cgc ttt ctg ccc tct gac ctc cac aat 389

Ile	Lys	Ser	His	Leu	Pro	Tyr	Arg	Phe	Leu	Pro	Ser	Asp	Leu	His	Asn		
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Gly	Asp	Ser	Lys	Val	Ile	Tyr	Met	Ala	Arg	Asn	Pro	Lys	Asp	Leu	Val		
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gtg	tct	tat	tat	cag	ttc	cac	cgc	tct	ctg	cgg	acc	atg	agc	tac	cga	485	
Val	Ser	Tyr	Tyr	Gln	Phe	His	Arg	Ser	Leu	Arg	Thr	Met	Ser	Tyr	Arg		
	140				145					150					155		
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Gly	Thr	Phe	Gln	Glu	Phe	Cys	Arg	Arg	Phe	Met	Asn	Asp	Lys	Leu	Gly		
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Tyr	Gly	Ser	Trp	Phe	Glu	His	Val	Gln	Glu	Phe	Trp	Glu	His	Arg	Met		
			175					180					185				
gac	tgc	aac	gtg	ctt	ttt	ctc	aag	tat	gaa	gac	atg	cat	cgg	gac	ctg	629	
Asp	Ser	Asn	Val	Leu	Phe	Leu	Lys	Tyr	Glu	Asp	Met	His	Arg	Asp	Leu		
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gtg	acg	atg	gtg	gag	cag	ctg	gcc	aga	ttc	ctg	ggg	gtg	tcc	tgt	gac	677	
Val	Thr	Met	Val	Glu	Gln	Leu	Ala	Arg	Phe	Leu	Gly	Val	Ser	Cys	Asp		
	205					210					215						
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Lys	Ala	Gln	Leu	Glu	Ala	Leu	Thr	Glu	His	Cys	His	Gln	Leu	Val	Asp		
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cag	tgc	tgc	aac	gct	gag	gcc	ctg	ccc	gtg	ggc	cgg	gga	aga	gtt	ggg	773	
Gln	Cys	Cys	Asn	Ala	Glu	Ala	Leu	Pro	Val	Gly	Arg	Gly	Arg	Val	Gly		
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Leu	*																

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<211> 284

<212> PRT

<213> Homo sapiens

<400> 110

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Gly Lys Met Glu Glu Ile Ala Asn Phe Pro Val Arg Pro Ser Asp Val
35          40          45
Trp Ile Val Thr Tyr Pro Lys Ser Gly Thr Ser Leu Leu Gln Glu Val
50          55          60
Val Tyr Leu Val Ser Gln Gly Ala Asp Pro Asp Glu Ile Gly Leu Met
65          70          75          80
Asn Ile Asp Glu Gln Leu Pro Val Leu Glu Tyr Pro Gln Pro Gly Leu
85          90          95
Asp Ile Ile Lys Glu Leu Thr Ser Pro Arg Leu Ile Lys Ser His Leu
100         105         110
Pro Tyr Arg Phe Leu Pro Ser Asp Leu His Asn Gly Asp Ser Lys Val
115         120         125
Ile Tyr Met Ala Arg Asn Pro Lys Asp Leu Val Val Ser Tyr Tyr Gln
130         135         140
Phe His Arg Ser Leu Arg Thr Met Ser Tyr Arg Gly Thr Phe Gln Glu
145         150         155         160
Phe Cys Arg Arg Phe Met Asn Asp Lys Leu Gly Tyr Gly Ser Trp Phe
165         170         175
Glu His Val Gln Glu Phe Trp Glu His Arg Met Asp Ser Asn Val Leu
180         185         190
Phe Leu Lys Tyr Glu Asp Met His Arg Asp Leu Val Thr Met Val Glu
195         200         205
Gln Leu Ala Arg Phe Leu Gly Val Ser Cys Asp Lys Ala Gln Leu Glu
210         215         220
Ala Leu Thr Glu His Cys His Gln Leu Val Asp Gln Cys Cys Asn Ala
225         230         235         240
Glu Ala Leu Pro Val Gly Arg Gly Arg Val Gly Leu Trp Lys Asp Ile
245         250         255
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<212> DNA

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<220>

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<222> (298)...(1446)

<400> 111

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tccgtccgct cctcctcatt tcctcttttc cgtcggggcc ctctccccag agcctccccg 180
cgcggacccc gctgcagtct cggggttctc agcacattta tggaagtta gggcctggac 240
agtggccccg agtcggcct gagagcgcag cctgggctgc tggcagggaa gaggaag atg 300
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Met

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tct gtg ctc agg cgg atg atg cgg gtt tcc aat cgc tct ctc ctc gcc 348
Ser Val Leu Arg Arg Met Met Arg Val Ser Asn Arg Ser Leu Leu Ala
5 10 15
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ttc atc ttc ttc ttc tcc ctc tct tcc tcc tgt ctg tac ttc atc tat 396
Phe Ile Phe Phe Phe Ser Leu Ser Ser Ser Cys Leu Tyr Phe Ile Tyr
20 25 30
```

```
gtg gcc cca ggc atc gcc aac aca tat ctc ttt atg gta caa gct cga 444
Val Ala Pro Gly Ile Ala Asn Thr Tyr Leu Phe Met Val Gln Ala Arg
35 40 45
```

```
ggg ata atg ttg aga gaa aat gtg aaa aca ata ggt cat atg atc agg 492
Gly Ile Met Leu Arg Glu Asn Val Lys Thr Ile Gly His Met Ile Arg
50 55 60 65
```

```
ctg tac aca aat aaa aac agt acg ctc aac ggt aca gat tat ccc gaa 540
Leu Tyr Thr Asn Lys Asn Ser Thr Leu Asn Gly Thr Asp Tyr Pro Glu
70 75 80
```

```
ggc aat aat tca agt gat tat ctt gtt caa aca aca acg tat ctc ccg 588
Gly Asn Asn Ser Ser Asp Tyr Leu Val Gln Thr Thr Thr Tyr Leu Pro
85 90 95
```

```
gaa aac ttc aca tac tca cca tac ctc ccc tgt cca gaa aag ctg cct 636
Glu Asn Phe Thr Tyr Ser Pro Tyr Leu Pro Cys Pro Glu Lys Leu Pro
100 105 110
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tat atg cga gga ttc ctc aat gtc aat gta agc gaa gtc agt ttt gat 684
Tyr Met Arg Gly Phe Leu Asn Val Asn Val Ser Glu Val Ser Phe Asp
115 120 125
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```
gaa att cat caa ctc ttc tcc aag gat tta gat att gag cca ggg ggt 732
Glu Ile His Gln Leu Phe Ser Lys Asp Leu Asp Ile Glu Pro Gly Gly
130 135 140 145
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```
cat tgg agg cca aaa gac tgt aaa ccc aga tgg aag gtg gca gtt ctc 780
His Trp Arg Pro Lys Asp Cys Lys Pro Arg Trp Lys Val Ala Val Leu
150 155 160
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```
att cct ttc cgt aat cgc cat gaa cat ctt cca att ttt ttc tta cat 828
Ile Pro Phe Arg Asn Arg His Glu His Leu Pro Ile Phe Phe Leu His
165 170 175
```

```
ctg att cca atg ctc cag aag cag cgg ctg gaa ttt gcg ttt tat gtc 876
Leu Ile Pro Met Leu Gln Lys Gln Arg Leu Glu Phe Ala Phe Tyr Val
180 185 190
```

att gaa cag act ggc aca caa cct ttt aac cgt gcg atg ctt ttc aat	924
Ile Glu Gln Thr Gly Thr Gln Pro Phe Asn Arg Ala Met Leu Phe Asn	
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gtg ggc ttc aaa gag gcc atg aaa gac agt gtc tgg gac tgt gta atc	972
Val Gly Phe Lys Glu Ala Met Lys Asp Ser Val Trp Asp Cys Val Ile	
210 215 220 225	
ttc cac gat gtg gat cat cta cct gaa aat gac cgg aac tat tac gga	1020
Phe His Asp Val Asp His Leu Pro Glu Asn Asp Arg Asn Tyr Tyr Gly	
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Cys Gly Glu Met Pro Arg His Phe Ala Ala Lys Leu Asp Lys Tyr Met	
245 250 255	
tat att ctt cca tat aaa gaa ttt ttt ggt ggt gta agt ggg ctg aca	1116
Tyr Ile Leu Pro Tyr Lys Glu Phe Phe Gly Gly Val Ser Gly Leu Thr	
260 265 270	
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Val Glu Gln Phe Arg Lys Ile Asn Gly Phe Pro Asn Ala Phe Trp Gly	
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Trp Gly Gly Glu Asp Asp Asp Leu Trp Asn Arg Val His Tyr Ala Gly	
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Tyr Asn Val Thr Arg Pro Glu Gly Asp Leu Gly Lys Tyr Lys Ser Ile	
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cct cat cac cat aga ggt gaa gtc cag ttt tta gga cgg tat aaa tta	1308
Pro His His His Arg Gly Glu Val Gln Phe Leu Gly Arg Tyr Lys Leu	
325 330 335	
cta agg tat tcc aag gag cgt cag tac atc gat gga ctg aac aat tta	1356
Leu Arg Tyr Ser Lys Glu Arg Gln Tyr Ile Asp Gly Leu Asn Asn Leu	
340 345 350	
ata tat agg cca aaa ata ctg gtt gat agg ttg tat aca aac ata tct	1404
Ile Tyr Arg Pro Lys Ile Leu Val Asp Arg Leu Tyr Thr Asn Ile Ser	
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gta aac ctc atg cca gag tta gct cca atc gaa gac tat taa	1446
Val Asn Leu Met Pro Glu Leu Ala Pro Ile Glu Asp Tyr *	
370 375 380	
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```

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aaaaaaaaa aaaaaaaaaa aaaaa 3931

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 <211> 382  
 <212> PRT  
 <213> Homo sapiens

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Tyr Val Ala Pro Gly Ile Ala Asn Thr Tyr Leu Phe Met Val Gln Ala
 35          40          45
Arg Gly Ile Met Leu Arg Glu Asn Val Lys Thr Ile Gly His Met Ile
 50          55          60
Arg Leu Tyr Thr Asn Lys Asn Ser Thr Leu Asn Gly Thr Asp Tyr Pro
 65          70          75          80
Glu Gly Asn Asn Ser Ser Asp Tyr Leu Val Gln Thr Thr Thr Tyr Leu
 85          90          95
Pro Glu Asn Phe Thr Tyr Ser Pro Tyr Leu Pro Cys Pro Glu Lys Leu
100          105          110
Pro Tyr Met Arg Gly Phe Leu Asn Val Asn Val Ser Glu Val Ser Phe
115          120          125
Asp Glu Ile His Gln Leu Phe Ser Lys Asp Leu Asp Ile Glu Pro Gly
130          135          140
Gly His Trp Arg Pro Lys Asp Cys Lys Pro Arg Trp Lys Val Ala Val
145          150          155          160
Leu Ile Pro Phe Arg Asn Arg His Glu His Leu Pro Ile Phe Phe Leu
165          170          175
His Leu Ile Pro Met Leu Gln Lys Gln Arg Leu Glu Phe Ala Phe Tyr
180          185          190
Val Ile Glu Gln Thr Gly Thr Gln Pro Phe Asn Arg Ala Met Leu Phe

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	195		200		205										
Asn	Val	Gly	Phe	Lys	Glu	Ala	Met	Lys	Asp	Ser	Val	Trp	Asp	Cys	Val
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Ile	Phe	His	Asp	Val	Asp	His	Leu	Pro	Glu	Asn	Asp	Arg	Asn	Tyr	Tyr
225					230					235					240
Gly	Cys	Gly	Glu	Met	Pro	Arg	His	Phe	Ala	Ala	Lys	Leu	Asp	Lys	Tyr
				245					250					255	
Met	Tyr	Ile	Leu	Pro	Tyr	Lys	Glu	Phe	Phe	Gly	Gly	Val	Ser	Gly	Leu
			260					265					270		
Thr	Val	Glu	Gln	Phe	Arg	Lys	Ile	Asn	Gly	Phe	Pro	Asn	Ala	Phe	Trp
		275					280					285			
Gly	Trp	Gly	Gly	Glu	Asp	Asp	Asp	Leu	Trp	Asn	Arg	Val	His	Tyr	Ala
290					295					300					
Gly	Tyr	Asn	Val	Thr	Arg	Pro	Glu	Gly	Asp	Leu	Gly	Lys	Tyr	Lys	Ser
305					310					315					320
Ile	Pro	His	His	His	Arg	Gly	Glu	Val	Gln	Phe	Leu	Gly	Arg	Tyr	Lys
				325					330					335	
Leu	Leu	Arg	Tyr	Ser	Lys	Glu	Arg	Gln	Tyr	Ile	Asp	Gly	Leu	Asn	Asn
			340					345					350		
Leu	Ile	Tyr	Arg	Pro	Lys	Ile	Leu	Val	Asp	Arg	Leu	Tyr	Thr	Asn	Ile
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 Met Leu Arg Ala Ala Leu Ser Leu Leu Ala Leu Pro Leu Ala  
 1 5 10

ggg gcg gcc gaa gag ccc acc cag aag cca gag tcc ccg gcc gag cct 159  
 Gly Ala Ala Glu Glu Pro Thr Gln Lys Pro Glu Ser Pro Gly Glu Pro  
 15 20 25 30

ccc cca ggc tta gag ctc ttc cgc tgg cag tgg cac gag gtg gag gcg 207  
 Pro Pro Gly Leu Glu Leu Phe Arg Trp Gln Trp His Glu Val Glu Ala  
 35 40 45

ccc tac ctg gtg gcc ctg tgg atc ctg gtg gcc agt ctg gcc aaa atc 255  
 Pro Tyr Leu Val Ala Leu Trp Ile Leu Val Ala Ser Leu Ala Lys Ile  
 50 55 60

gtg ttt cac ctg tct cgg aaa gta aca tct ctg gtc cct gag agc tgc 303  
 Val Phe His Leu Ser Arg Lys Val Thr Ser Leu Val Pro Glu Ser Cys  
 65 70 75

ctg ctg att ttg ctg gcc ctg gtg cta ggg gga att gtt ttg gct gtg 351  
 Leu Leu Ile Leu Leu Gly Leu Val Leu Gly Gly Ile Val Leu Ala Val  
 80 85 90

gcc aag aaa gct gag tac cag ctg gag cca ggc acc ttc ttc ctc ttc 399



Ala	Lys	Lys	Ala	Glu	Tyr	Gln	Leu	Glu	Pro	Gly	Thr	Phe	Phe	Leu	Phe		
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ctg	ctg	cct	cct	att	gtg	ttg	gac	tca	ggc	tat	ttc	atg	cct	agc	agg	447	
Leu	Leu	Pro	Pro	Ile	Val	Leu	Asp	Ser	Gly	Tyr	Phe	Met	Pro	Ser	Arg		
				115					120					125			
ctg	ttc	ttt	gac	aac	ttg	ggg	gcc	atc	ctc	acc	tat	gcc	gtg	gta	ggc	495	
Leu	Phe	Phe	Asp	Asn	Leu	Gly	Ala	Ile	Leu	Thr	Tyr	Ala	Val	Val	Gly		
			130					135					140				
aca	ctc	tgg	aac	gcc	ttc	aca	aca	ggc	gct	gcc	ctc	tgg	ggc	ttg	cag	543	
Thr	Leu	Trp	Asn	Ala	Phe	Thr	Thr	Gly	Ala	Ala	Leu	Trp	Gly	Leu	Gln		
		145					150					155					
cag	gct	gga	ctt	gta	gcc	cct	agg	gtg	cag	gct	ggc	tta	ctg	gac	ttc	591	
Gln	Ala	Gly	Leu	Val	Ala	Pro	Arg	Val	Gln	Ala	Gly	Leu	Leu	Asp	Phe		
	160					165					170						
ctg	ctg	ttt	ggg	agc	ctc	atc	tcg	gcg	gtg	gac	ccc	gtg	gcc	gtg	cta	639	
Leu	Leu	Phe	Gly	Ser	Leu	Ile	Ser	Ala	Val	Asp	Pro	Val	Ala	Val	Leu		
175					180					185					190		
gct	gtc	ttt	gag	gag	gtg	cac	gtc	aac	gag	act	ctc	ttt	atc	atc	gtc	687	
Ala	Val	Phe	Glu	Glu	Val	His	Val	Asn	Glu	Thr	Leu	Phe	Ile	Ile	Val		
				195				200					205				
ttt	ggc	gag	tcc	ctg	ctc	aac	gat	gct	gtc	acc	gtg	gtg	ctg	tac	aag	735	
Phe	Gly	Glu	Ser	Leu	Leu	Asn	Asp	Ala	Val	Thr	Val	Val	Leu	Tyr	Lys		
			210					215					220				
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Val	Cys	Asn	Ser	Phe	Val	Glu	Met	Gly	Ser	Ala	Asn	Val	Gln	Ala	Thr		
		225					230					235					
gac	tac	ctg	aag	gga	gtc	gcc	tcc	ctg	ttt	gtg	gtc	agt	ctg	ggc	ggg	831	
Asp	Tyr	Leu	Lys	Gly	Val	Ala	Ser	Leu	Phe	Val	Val	Ser	Leu	Gly	Gly		
	240				245						250						
gca	gcc	gtg	ggc	tta	gtc	ttt	gcc	ttc	ctc	ctg	gcc	ctg	acc	aca	cgc	879	
Ala	Ala	Val	Gly	Leu	Val	Phe	Ala	Phe	Leu	Leu	Ala	Leu	Thr	Thr	Arg		
255					260					265					270		
ttc	acc	aag	cgg	gtc	cgc	atc	atc	gag	ccg	ctg	ctg	gtc	ttc	ctc	ctc	927	
Phe	Thr	Lys	Arg	Val	Arg	Ile	Ile	Glu	Pro	Leu	Leu	Val	Phe	Leu	Leu		
				275					280					285			
gcc	tac	gca	gcc	tac	ctc	act	gct	gaa	atg	gcc	tcg	ctc	tcc	gcc	att	975	
Ala	Tyr	Ala	Ala	Tyr	Leu	Thr	Ala	Glu	Met	Ala	Ser	Leu	Ser	Ala	Ile		
			290					295					300				
ctt	gcg	gtg	acc	atg	tgt	ggc	ctg	ggc	tgt	aag	aag	tac	gtg	gag	gcc	1023	
Leu	Ala	Val	Thr	Met	Cys	Gly	Leu	Gly	Cys	Lys	Lys	Tyr	Val	Glu	Ala		
		305					310					315					
aac	atc	tcc	cat	aag	tca	cgc	aca	act	gtc	aaa	tat	aca	atg	aag	act	1071	
Asn	Ile	Ser	His	Lys	Ser	Arg	Thr	Thr	Val	Lys	Tyr	Thr	Met	Lys	Thr		
	320					325					330						
cta	gcc	agc	tgt	gct	gag	acc	gtg	atc	ttc	atg	ctg	ctt	ggc	atc	tca	1119	
Leu	Ala	Ser	Cys	Ala	Glu	Thr	Val	Ile	Phe	Met	Leu	Leu	Gly	Ile	Ser		

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gcc gtg gac tct tct aag tgg gcc tgg gat tct ggg ctg gtg ctg ggc							1167
Ala Val Asp Ser Ser Lys Trp Ala Trp Asp Ser Gly Leu Val Leu Gly							
		355		360		365	
acc ctc atc ttc atc ctg ttc ttc cga gcc ctc ggc gta gtc ctg cag							1215
Thr Leu Ile Phe Ile Leu Phe Phe Arg Ala Leu Gly Val Val Leu Gln							
		370		375		380	
acc tgg gtg ctg aat cag ttc cgg cta gtc cct ctg gac aag att gac							1263
Thr Trp Val Leu Asn Gln Phe Arg Leu Val Pro Leu Asp Lys Ile Asp							
		385		390		395	
caa gtg gtg atg tcc tat ggg ggc ctg cgg ggg gct gtg gcc ttt gct							1311
Gln Val Val Met Ser Tyr Gly Gly Leu Arg Gly Ala Val Ala Phe Ala							
		400		405		410	
ctc gtc atc cta ctg gat agg acc aag gtc cct gcc aag gac tac ttt							1359
Leu Val Ile Leu Leu Asp Arg Thr Lys Val Pro Ala Lys Asp Tyr Phe							
		415		420		425	430
gta gcc acc act att gta gtg gtc ttc ttc aca gtc atc gtg cag ggc							1407
Val Ala Thr Thr Ile Val Val Val Phe Phe Thr Val Ile Val Gln Gly							
		435		440		445	
ttg acc atc aag cca ctg gtc aaa tgg ctg aag gtg aag agg agt gag							1455
Leu Thr Ile Lys Pro Leu Val Lys Trp Leu Lys Val Lys Arg Ser Glu							
		450		455		460	
cat cac aaa ccc acc ctg aac cag gag ctg cat gaa cac act ttt gac							1503
His His Lys Pro Thr Leu Asn Gln Glu Leu His Glu His Thr Phe Asp							
		465		470		475	
cac att ctg gct gca gtg gag gac gtt gtg ggg cac cat ggc tac cac							1551
His Ile Leu Ala Ala Val Glu Asp Val Val Gly His His Gly Tyr His							
		480		485		490	
tac tgg agg gac agg tgg gag cag ttt gac aag aaa tac ctg agt cag							1599
Tyr Trp Arg Asp Arg Trp Glu Gln Phe Asp Lys Lys Tyr Leu Ser Gln							
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ctg ctg atg cga cga tca gcc tac cgc atc cgg gac cag atc tgg gat							1647
Leu Leu Met Arg Arg Ser Ala Tyr Arg Ile Arg Asp Gln Ile Trp Asp							
		515		520		525	
gtg tac tac agg ctt aac atc cgg gat gcc atc agc ttt gtg gac cag							1695
Val Tyr Tyr Arg Leu Asn Ile Arg Asp Ala Ile Ser Phe Val Asp Gln							
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Gly Gly His Val Leu Ser Ser Thr Gly Leu Thr Leu Pro Ser Met Pro							
		545		550		555	
agc cgc aat tct gtg gca gaa act tct gtc acc aac ctg ctg agg gag							1791
Ser Arg Asn Ser Val Ala Glu Thr Ser Val Thr Asn Leu Leu Arg Glu							
		560		565		570	
agt ggc agt gga gcg tgt ctg gat ctg cag gtg att gac aca gta cgc							1839
Ser Gly Ser Gly Ala Cys Leu Asp Leu Gln Val Ile Asp Thr Val Arg							
		575		580		585	590

agc ggc cgg gat cgt gag gat gct gtg atg cat cat ctg ctc tgc gga Ser Gly Arg Asp Arg Glu Asp Ala Val Met His His Leu Leu Cys Gly	1887
595 600 605	
ggc ctc tac aag ccg cgc cgt agg tac aaa gcc agc tgc agt cgc cac Gly Leu Tyr Lys Pro Arg Arg Arg Tyr Lys Ala Ser Cys Ser Arg His	1935
610 615 620	
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625 630 635	
cag aac atg aag cgg cgg ctg gag tcc ttt aag tcc acc aag cac aac Gln Asn Met Lys Arg Arg Leu Glu Ser Phe Lys Ser Thr Lys His Asn	2031
640 645 650	
atc tgc ttc acc aag agc aag cca cga ccc cgc aag act ggc cgc agg Ile Cys Phe Thr Lys Ser Lys Pro Arg Pro Arg Lys Thr Gly Arg Arg	2079
655 660 665 670	
aag aag gat ggt gtg gcg aat gct gag gct aca aat ggg aaa cat cga Lys Lys Asp Gly Val Ala Asn Ala Glu Ala Thr Asn Gly Lys His Arg	2127
675 680 685	
ggc ctg ggc ttt cag gac aca gct gct gtg ata tta acc gtg gag tct Gly Leu Gly Phe Gln Asp Thr Ala Ala Val Ile Leu Thr Val Glu Ser	2175
690 695 700	
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705 710 715	
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720 725 730	
gag ggc aag gtc tca gga agc ctt gag gtg tgc cca agc cca cga atc Glu Gly Lys Val Ser Gly Ser Leu Glu Val Cys Pro Ser Pro Arg Ile	2319
735 740 745 750	
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755 760 765	
ggg cag ggg gac ctg gca gtg tac gtg tcc tcg gaa acc acc aag att Gly Gln Gly Asp Leu Ala Val Tyr Val Ser Ser Glu Thr Thr Lys Ile	2415
770 775 780	
gtg cct gtg gac atg cag acg ggt tgg aac cag agc atc tca tcc ctg Val Pro Val Asp Met Gln Thr Gly Trp Asn Gln Ser Ile Ser Ser Leu	2463
785 790 795	
gag agc cta gcg tcc cct ccc tgt aac cag gcc cca att ctg acc tgc Glu Ser Leu Ala Ser Pro Pro Cys Asn Gln Ala Pro Ile Leu Thr Cys	2511
800 805 810	
ctg cct ccc cat cca cgg ggc act gaa gag ccc cag gtc cct ctc cac Leu Pro Pro His Pro Arg Gly Thr Glu Glu Pro Gln Val Pro Leu His	2559
815 820 825 830	

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cta cct tct gat cca cgc tct agc ttc gcc ttc cca ccg agc ctg gcc 2607
Leu Pro Ser Asp Pro Arg Ser Ser Phe Ala Phe Pro Pro Ser Leu Ala
      835                      840                      845

aag gct ggc cgc tct cgc agt gag agc agc gct gac ctc ccc cag cag 2655
Lys Ala Gly Arg Ser Arg Ser Glu Ser Ser Ala Asp Leu Pro Gln Gln
      850                      855                      860

cag gag ctg cag ccc ctc atg ggc cac aag gac cac acc cat ctc agc 2703
Gln Glu Leu Gln Pro Leu Met Gly His Lys Asp His Thr His Leu Ser
      865                      870                      875

cca ggc acc gct acc tcc cac tgg tgc atc cag ttc aac aga ggc agc 2751
Pro Gly Thr Ala Thr Ser His Trp Cys Ile Gln Phe Asn Arg Gly Ser
      880                      885                      890

cgg ctg tag ctcaaggcct cggggaggag caggaggtgg aatccctgtg 2800
Arg Leu *
895

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ggaagtgctc cctgggtgat gggtagagcc ctcgaaactt gacatggggc cagaagggcc 2860
tgggttgaag tagtaattgg gcttccttgg agctagtcag aggggtcacc taagctggtc 2920
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gataagaacc catcatctca gggccactgc tccattgctc tgggggctgg gattcctggc 3640
taagcagggg ctgacagggt ggcaggtgac tttctagggg tcagcacctg ccctgtgttt 3700
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a 3761

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<210> 114  
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 <212> PRT  
 <213> Homo sapiens

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Ala Glu Glu Pro Thr Gln Lys Pro Glu Ser Pro Gly Glu Pro Pro Pro
      20          25          30
Gly Leu Glu Leu Phe Arg Trp Gln Trp His Glu Val Glu Ala Pro Tyr
      35          40          45
Leu Val Ala Leu Trp Ile Leu Val Ala Ser Leu Ala Lys Ile Val Phe
      50          55          60
His Leu Ser Arg Lys Val Thr Ser Leu Val Pro Glu Ser Cys Leu Leu
      65          70          75          80
Ile Leu Leu Gly Leu Val Leu Gly Gly Ile Val Leu Ala Val Ala Lys
      85          90          95
Lys Ala Glu Tyr Gln Leu Glu Pro Gly Thr Phe Phe Leu Phe Leu Leu
      100          105          110
Pro Pro Ile Val Leu Asp Ser Gly Tyr Phe Met Pro Ser Arg Leu Phe
      115          120          125
Phe Asp Asn Leu Gly Ala Ile Leu Thr Tyr Ala Val Val Gly Thr Leu

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130		135		140
Trp Asn Ala Phe Thr Thr Gly Ala Ala Leu Trp Gly Leu Gln Gln Ala				
145		150		155
Gly Leu Val Ala Pro Arg Val Gln Ala Gly Leu Leu Asp Phe Leu Leu				160
	165		170	175
Phe Gly Ser Leu Ile Ser Ala Val Asp Pro Val Ala Val Leu Ala Val				
	180		185	190
Phe Glu Glu Val His Val Asn Glu Thr Leu Phe Ile Ile Val Phe Gly				
	195		200	205
Glu Ser Leu Leu Asn Asp Ala Val Thr Val Val Leu Tyr Lys Val Cys				
	210		215	220
Asn Ser Phe Val Glu Met Gly Ser Ala Asn Val Gln Ala Thr Asp Tyr				
225		230		235
Leu Lys Gly Val Ala Ser Leu Phe Val Val Ser Leu Gly Gly Ala Ala				
	245		250	255
Val Gly Leu Val Phe Ala Phe Leu Leu Ala Leu Thr Thr Arg Phe Thr				
	260		265	270
Lys Arg Val Arg Ile Ile Glu Pro Leu Leu Val Phe Leu Leu Ala Tyr				
	275		280	285
Ala Ala Tyr Leu Thr Ala Glu Met Ala Ser Leu Ser Ala Ile Leu Ala				
	290		295	300
Val Thr Met Cys Gly Leu Gly Cys Lys Lys Tyr Val Glu Ala Asn Ile				
305		310		315
Ser His Lys Ser Arg Thr Thr Val Lys Tyr Thr Met Lys Thr Leu Ala				
	325		330	335
Ser Cys Ala Glu Thr Val Ile Phe Met Leu Leu Gly Ile Ser Ala Val				
	340		345	350
Asp Ser Ser Lys Trp Ala Trp Asp Ser Gly Leu Val Leu Gly Thr Leu				
	355		360	365
Ile Phe Ile Leu Phe Phe Arg Ala Leu Gly Val Val Leu Gln Thr Trp				
	370		375	380
Val Leu Asn Gln Phe Arg Leu Val Pro Leu Asp Lys Ile Asp Gln Val				
385		390		395
Val Met Ser Tyr Gly Gly Leu Arg Gly Ala Val Ala Phe Ala Leu Val				
	405		410	415
Ile Leu Leu Asp Arg Thr Lys Val Pro Ala Lys Asp Tyr Phe Val Ala				
	420		425	430
Thr Thr Ile Val Val Val Phe Phe Thr Val Ile Val Gln Gly Leu Thr				
	435		440	445
Ile Lys Pro Leu Val Lys Trp Leu Lys Val Lys Arg Ser Glu His His				
	450		455	460
Lys Pro Thr Leu Asn Gln Glu Leu His Glu His Thr Phe Asp His Ile				
465		470		475
Leu Ala Ala Val Glu Asp Val Val Gly His His Gly Tyr His Tyr Trp				
	485		490	495
Arg Asp Arg Trp Glu Gln Phe Asp Lys Lys Tyr Leu Ser Gln Leu Leu				
	500		505	510
Met Arg Arg Ser Ala Tyr Arg Ile Arg Asp Gln Ile Trp Asp Val Tyr				
	515		520	525
Tyr Arg Leu Asn Ile Arg Asp Ala Ile Ser Phe Val Asp Gln Gly Gly				
	530		535	540
His Val Leu Ser Ser Thr Gly Leu Thr Leu Pro Ser Met Pro Ser Arg				
545		550		555
Asn Ser Val Ala Glu Thr Ser Val Thr Asn Leu Leu Arg Glu Ser Gly				
	565		570	575
Ser Gly Ala Cys Leu Asp Leu Gln Val Ile Asp Thr Val Arg Ser Gly				
	580		585	590
Arg Asp Arg Glu Asp Ala Val Met His His Leu Leu Cys Gly Gly Leu				
	595		600	605
Tyr Lys Pro Arg Arg Arg Tyr Lys Ala Ser Cys Ser Arg His Phe Ile				

610	615	620																	
Ser	Glu	Asp	Ala	Gln	Glu	Arg	Gln	Asp	Lys	Glu	Val	Phe	Gln	Gln	Asn				
625	630	635													640				
Met	Lys	Arg	Arg	Leu	Glu	Ser	Phe	Lys	Ser	Thr	Lys	His	Asn	Ile	Cys				
	645	650													655				
Phe	Thr	Lys	Ser	Lys	Pro	Arg	Pro	Arg	Lys	Thr	Gly	Arg	Arg	Lys	Lys				
	660	665													670				
Asp	Gly	Val	Ala	Asn	Ala	Glu	Ala	Thr	Asn	Gly	Lys	His	Arg	Gly	Leu				
	675	680													685				
Gly	Phe	Gln	Asp	Thr	Ala	Ala	Val	Ile	Leu	Thr	Val	Glu	Ser	Glu	Glu				
	690	695													700				
Glu	Glu	Glu	Glu	Ser	Asp	Ser	Ser	Glu	Thr	Glu	Lys	Glu	Asp	Asp	Glu				
705		710													720				
Gly	Ile	Ile	Phe	Val	Ala	Arg	Ala	Thr	Ser	Glu	Val	Leu	Gln	Glu	Gly				
	725	730													735				
Lys	Val	Ser	Gly	Ser	Leu	Glu	Val	Cys	Pro	Ser	Pro	Arg	Ile	Ile	Pro				
	740	745													750				
Pro	Ser	Pro	Thr	Cys	Ala	Glu	Lys	Glu	Leu	Pro	Trp	Lys	Ser	Gly	Gln				
	755	760													765				
Gly	Asp	Leu	Ala	Val	Tyr	Val	Ser	Ser	Glu	Thr	Thr	Lys	Ile	Val	Pro				
	770	775													780				
Val	Asp	Met	Gln	Thr	Gly	Trp	Asn	Gln	Ser	Ile	Ser	Ser	Leu	Glu	Ser				
785		790													800				
Leu	Ala	Ser	Pro	Pro	Cys	Asn	Gln	Ala	Pro	Ile	Leu	Thr	Cys	Leu	Pro				
	805	810													815				
Pro	His	Pro	Arg	Gly	Thr	Glu	Glu	Pro	Gln	Val	Pro	Leu	His	Leu	Pro				
	820	825													830				
Ser	Asp	Pro	Arg	Ser	Ser	Phe	Ala	Phe	Pro	Pro	Ser	Leu	Ala	Lys	Ala				
	835	840													845				
Gly	Arg	Ser	Arg	Ser	Glu	Ser	Ser	Ala	Asp	Leu	Pro	Gln	Gln	Gln	Glu				
	850	855													860				
Leu	Gln	Pro	Leu	Met	Gly	His	Lys	Asp	His	Thr	His	Leu	Ser	Pro	Gly				
865		870													880				
Thr	Ala	Thr	Ser	His	Trp	Cys	Ile	Gln	Phe	Asn	Arg	Gly	Ser	Arg	Leu				
	885	890													895				

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (73)...(1176)

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 Met Ala Tyr Arg Val Leu Gly Arg Ala Gly Pro Pro Gln  
 1 5 10  
  
 ccg cgg agg gcg cgc agg ctg ctc ttc gcc ttc acg ctc tcg ctc tcc 159  
 Pro Arg Arg Ala Arg Arg Leu Leu Phe Ala Phe Thr Leu Ser Leu Ser  
 15 20 25  
  
 tgc act tac ctg tgt tac agc ttc ctg tgc tgc tgc gac gac ctg ggt 207  
 Cys Thr Tyr Leu Cys Tyr Ser Phe Leu Cys Cys Cys Asp Asp Leu Gly  
 30 35 40 45

cgc agc cgc ctc ctc ggc gcg cct cgc tgc ctc cgc ggc ccc agc gcg	255
Arg Ser Arg Leu Leu Gly Ala Pro Arg Cys Leu Arg Gly Pro Ser Ala	
50 55 60	
ggc ggc cag aaa ctt ctc cag aag tcc cgc ccc tgt gat ccc tcc ggg	303
Gly Gly Gln Lys Leu Leu Gln Lys Ser Arg Pro Cys Asp Pro Ser Gly	
65 70 75	
ccg acg ccc agc gag ccc agc gct ccc agc gcg ccc gcc gcc gcc gtg	351
Pro Thr Pro Ser Glu Pro Ser Ala Pro Ser Ala Pro Ala Ala Ala Val	
80 85 90	
ccc gcc cct cgc ctc tcc ggt tcc aac cac tcc ggc tca ccc aag ctg	399
Pro Ala Pro Arg Leu Ser Gly Ser Asn His Ser Gly Ser Pro Lys Leu	
95 100 105	
ggt acc aag cgg ttg ccc caa gcc ctc att gtg ggc gtg aag aag ggg	447
Gly Thr Lys Arg Leu Pro Gln Ala Leu Ile Val Gly Val Lys Lys Gly	
110 115 120 125	
ggc acc cgg gcc gtg ctg gag ttt atc cga gta cac ccg gac gtg cgg	495
Gly Thr Arg Ala Val Leu Glu Phe Ile Arg Val His Pro Asp Val Arg	
130 135 140	
gcc ttg ggc acg gaa ccc cac ttc ttt gac agg aac tac ggc cgc ggg	543
Ala Leu Gly Thr Glu Pro His Phe Phe Asp Arg Asn Tyr Gly Arg Gly	
145 150 155	
ctg gat tgg tac agg agc ctg atg ccc agg acc ctc gag agc cag atc	591
Leu Asp Trp Tyr Arg Ser Leu Met Pro Arg Thr Leu Glu Ser Gln Ile	
160 165 170	
acg ctg gag aag acg ccc agc tac ttt gtc act caa gag gct cct cga	639
Thr Leu Glu Lys Thr Pro Ser Tyr Phe Val Thr Gln Glu Ala Pro Arg	
175 180 185	
cgc atc ttc aac atg tcc cga gac acc aag ctg atc gtg gtt gtg cgg	687
Arg Ile Phe Asn Met Ser Arg Asp Thr Lys Leu Ile Val Val Val Arg	
190 195 200 205	
aac cct gtg acc cgt gcc atc tct gat tac acg cag aca ctc tcc aag	735
Asn Pro Val Thr Arg Ala Ile Ser Asp Tyr Thr Gln Thr Leu Ser Lys	
210 215 220	
aag ccc gac atc ccg acc ttt gag ggc ctc tcc ttc cgc aac cgc acc	783
Lys Pro Asp Ile Pro Thr Phe Glu Gly Leu Ser Phe Arg Asn Arg Thr	
225 230 235	
ctg ggc ctg gtg gac gtg tgc tgg aac gcc atc cgc atc ggc atg tac	831
Leu Gly Leu Val Asp Val Ser Trp Asn Ala Ile Arg Ile Gly Met Tyr	
240 245 250	
gtg ctg cac ctg gag agc tgg ctg cag tac ttc ccg cta gct cag att	879
Val Leu His Leu Glu Ser Trp Leu Gln Tyr Phe Pro Leu Ala Gln Ile	
255 260 265	
cac ttc gtc agt ggc gag cga ctc atc act gac ccg gcc ggc gag atg	927
His Phe Val Ser Gly Glu Arg Leu Ile Thr Asp Pro Ala Gly Glu Met	
270 275 280 285	
ggg cga gtc cag gac ttc ctg ggc att aag aga ttc atc acg gac aag	975

Gly	Arg	Val	Gln	Asp	Phe	Leu	Gly	Ile	Lys	Arg	Phe	Ile	Thr	Asp	Lys		
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cac	ttc	tat	ttc	aac	aag	acc	aaa	gga	ttc	cct	tgc	ttg	aaa	aaa	aca	1023	
His	Phe	Tyr	Phe	Asn	Lys	Thr	Lys	Gly	Phe	Pro	Cys	Leu	Lys	Lys	Thr		
			305					310					315				
gaa	tcg	agc	ctc	ctg	cct	cga	tgc	ttg	ggc	aaa	tca	aaa	ggg	aga	act	1071	
Glu	Ser	Ser	Leu	Leu	Pro	Arg	Cys	Leu	Gly	Lys	Ser	Lys	Gly	Arg	Thr		
			320				325					330					
cat	gta	cag	att	gat	cct	gaa	gtg	ata	gac	cag	ctc	cga	gaa	ttt	tat	1119	
His	Val	Gln	Ile	Asp	Pro	Glu	Val	Ile	Asp	Gln	Leu	Arg	Glu	Phe	Tyr		
			335			340					345						
aga	ccg	tat	aat	atc	aaa	ttt	tat	gaa	acc	gtt	ggg	cag	gac	ttc	agg	1167	
Arg	Pro	Tyr	Asn	Ile	Lys	Phe	Tyr	Glu	Thr	Val	Gly	Gln	Asp	Phe	Arg		
					355					360					365		
tg	g	a	t	a	g	c	c	a	c	a	g	a	a	a	a	1216	
Trp	Glu	*															

tctcttccgt	gagatttgct	cccagaccct	cttatctccc	tccaacaaac	cctgggtcca	1276	
gccccctttc	ccaacttgag	ttgcatcatc	ttggaaccag	gaagcccagc	taaagccaag	1336	
agaccagaga	gtctctgcca	ctagttttca	tcagtctggt	caagcaaagt	tgatctgctc	1396	
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acgagctttc	atgttcagca	tgcaatggaa	tcattgcttgc	ccatgtgaaa	taaataatggc	1936	
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			20					25					30			
Leu	Cys	Tyr	Ser	Phe	Leu	Cys	Cys	Cys	Asp	Asp	Leu	Gly	Arg	Ser	Arg	
		35				40						45				
Leu	Leu	Gly	Ala	Pro	Arg	Cys	Leu	Arg	Gly	Pro	Ser	Ala	Gly	Gly	Gln	
	50					55					60					
Lys	Leu	Leu	Gln	Lys	Ser	Arg	Pro	Cys	Asp	Pro	Ser	Gly	Pro	Thr	Pro	
65				70						75				80		
Ser	Glu	Pro	Ser	Ala	Pro	Ser	Ala	Pro	Ala	Ala	Ala	Val	Pro	Ala	Pro	
			85					90					95			
Arg	Leu	Ser	Gly	Ser	Asn	His	Ser	Gly	Ser	Pro	Lys	Leu	Gly	Thr	Lys	
			100					105					110			
Arg	Leu	Pro	Gln	Ala	Leu	Ile	Val	Gly	Val	Lys	Lys	Gly	Gly	Thr	Arg	
		115				120						125				
Ala	Val	Leu	Glu	Phe	Ile	Arg	Val	His	Pro	Asp	Val	Arg	Ala	Leu	Gly	
	130					135					140					



Thr	Glu	Pro	His	Phe	Phe	Asp	Arg	Asn	Tyr	Gly	Arg	Gly	Leu	Asp	Trp
145					150					155					160
Tyr	Arg	Ser	Leu	Met	Pro	Arg	Thr	Leu	Glu	Ser	Gln	Ile	Thr	Leu	Glu
				165					170						175
Lys	Thr	Pro	Ser	Tyr	Phe	Val	Thr	Gln	Glu	Ala	Pro	Arg	Arg	Ile	Phe
			180					185						190	
Asn	Met	Ser	Arg	Asp	Thr	Lys	Leu	Ile	Val	Val	Val	Arg	Asn	Pro	Val
	195						200					205			
Thr	Arg	Ala	Ile	Ser	Asp	Tyr	Thr	Gln	Thr	Leu	Ser	Lys	Lys	Pro	Asp
	210					215					220				
Ile	Pro	Thr	Phe	Glu	Gly	Leu	Ser	Phe	Arg	Asn	Arg	Thr	Leu	Gly	Leu
225					230					235					240
Val	Asp	Val	Ser	Trp	Asn	Ala	Ile	Arg	Ile	Gly	Met	Tyr	Val	Leu	His
				245					250					255	
Leu	Glu	Ser	Trp	Leu	Gln	Tyr	Phe	Pro	Leu	Ala	Gln	Ile	His	Phe	Val
			260					265					270		
Ser	Gly	Glu	Arg	Leu	Ile	Thr	Asp	Pro	Ala	Gly	Glu	Met	Gly	Arg	Val
		275					280					285			
Gln	Asp	Phe	Leu	Gly	Ile	Lys	Arg	Phe	Ile	Thr	Asp	Lys	His	Phe	Tyr
	290					295					300				
Phe	Asn	Lys	Thr	Lys	Gly	Phe	Pro	Cys	Leu	Lys	Lys	Thr	Glu	Ser	Ser
305					310					315					320
Leu	Leu	Pro	Arg	Cys	Leu	Gly	Lys	Ser	Lys	Gly	Arg	Thr	His	Val	Gln
				325					330					335	
Ile	Asp	Pro	Glu	Val	Ile	Asp	Gln	Leu	Arg	Glu	Phe	Tyr	Arg	Pro	Tyr
		340						345					350		
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<213> Homo sapiens

<220>

<221> CDS

<222> (96)...(1616)

<400> 117

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Met Asp Asp Tyr Met Val  
1 5

ctg aga atg att ggg gag ggc tcc ttc ggc aga gct ctt ttg gtt cag 161  
Leu Arg Met Ile Gly Glu Gly Ser Phe Gly Arg Ala Leu Leu Val Gln  
10 15 20

cat gaa agc agt aat cag atg ttt gcc atg aaa gaa ata agg ctt ccc 209  
His Glu Ser Ser Asn Gln Met Phe Ala Met Lys Glu Ile Arg Leu Pro  
25 30 35

aag tct ttc tct aat aca cag aat tct agg aag gag gct gtt ctt tta 257  
Lys Ser Phe Ser Asn Thr Gln Asn Ser Arg Lys Glu Ala Val Leu Leu  
40 45 50

gcc aaa atg aaa cac cct aat att gtt gcc ttc aaa gaa tca ttt gaa 305  
Ala Lys Met Lys His Pro Asn Ile Val Ala Phe Lys Glu Ser Phe Glu  
55 60 65 70

gct gaa gga cac ttg tat att gtg atg gaa tac tgt gat gga ggg gat	353
Ala Glu Gly His Leu Tyr Ile Val Met Glu Tyr Cys Asp Gly Gly Asp	
75 80 85	
cta atg caa aag att aaa cag cag aaa gga aag tta ttt cct gaa gac	401
Leu Met Gln Lys Ile Lys Gln Gln Lys Gly Lys Leu Phe Pro Glu Asp	
90 95 100	
atg ata ctt aat tgg ttt acc caa atg tgc ctt gga gta aat cac att	449
Met Ile Leu Asn Trp Phe Thr Gln Met Cys Leu Gly Val Asn His Ile	
105 110 115	
cac aag aaa cgt gtg cta cac aga gat atc aag tcc aag aat atc ttc	497
His Lys Lys Arg Val Leu His Arg Asp Ile Lys Ser Lys Asn Ile Phe	
120 125 130	
ctc act cag aat gga aaa gtg aaa ttg gga gac ttt gga tct gcc cgt	545
Leu Thr Gln Asn Gly Lys Val Lys Leu Gly Asp Phe Gly Ser Ala Arg	
135 140 145 150	
ctt ctc tcc aat ccg atg gca ttt gct tgt acc tat gtg gga act cct	593
Leu Leu Ser Asn Pro Met Ala Phe Ala Cys Thr Tyr Val Gly Thr Pro	
155 160 165	
tat tat gtg cct cca gaa att tgg gaa aac ctg cct tat aac aat aaa	641
Tyr Tyr Val Pro Pro Glu Ile Trp Glu Asn Leu Pro Tyr Asn Asn Lys	
170 175 180	
agt gac atc tgg tcc ttg ggt tgc atc ctg tat gaa ctc tgt acc ctt	689
Ser Asp Ile Trp Ser Leu Gly Cys Ile Leu Tyr Glu Leu Cys Thr Leu	
185 190 195	
aag cat cca ttt cag gca aat agt tgg aaa aat ctt atc ctc aaa gta	737
Lys His Pro Phe Gln Ala Asn Ser Trp Lys Asn Leu Ile Leu Lys Val	
200 205 210	
tgt caa ggg tgc atc agt cca ctg ccg tct cat tac tcc tat gaa ctt	785
Cys Gln Gly Cys Ile Ser Pro Leu Pro Ser His Tyr Ser Tyr Glu Leu	
215 220 225 230	
cag ttc cta gtc aag cag atg ttt aaa agg aat ccc tca cat cgc ccc	833
Gln Phe Leu Val Lys Gln Met Phe Lys Arg Asn Pro Ser His Arg Pro	
235 240 245	
tcg gct aca acg ctt ctc tct cga ggc atc gta gct cgg ctt gtc cag	881
Ser Ala Thr Thr Leu Leu Ser Arg Gly Ile Val Ala Arg Leu Val Gln	
250 255 260	
aag tgc tta ccc ccc gag atc atc atg gaa tat ggt gag gaa gta tta	929
Lys Cys Leu Pro Pro Glu Ile Ile Met Glu Tyr Gly Glu Glu Val Leu	
265 270 275	
gaa gaa ata aaa aat tcg aag cat aac aca cca aga aaa aaa aca aac	977
Glu Glu Ile Lys Asn Ser Lys His Asn Thr Pro Arg Lys Lys Thr Asn	
280 285 290	
ccc agc aga atc agg ata gct ttg gga aat gaa gca agc aca gtg caa	1025
Pro Ser Arg Ile Arg Ile Ala Leu Gly Asn Glu Ala Ser Thr Val Gln	
295 300 305 310	
gag gaa gaa caa gat aga aag ggt agc cat act gat ttg gaa agc att	1073

Glu Glu Glu Gln Asp Arg Lys Gly Ser His Thr Asp Leu Glu Ser Ile	
315 320 325	
aat gaa aat tta gtt gaa agt gca ttg aga aga gta aac aga gaa gaa	1121
Asn Glu Asn Leu Val Glu Ser Ala Leu Arg Arg Val Asn Arg Glu Glu	
330 335 340	
aaa ggt aat aag tca gtc cat ctg agg aaa gcc agt tca cca aat ctt	1169
Lys Gly Asn Lys Ser Val His Leu Arg Lys Ala Ser Ser Pro Asn Leu	
345 350 355	
cat aga cga cag tgg gag aaa aat gta ccc aat aca gct ctt aca gct	1217
His Arg Arg Gln Trp Glu Lys Asn Val Pro Asn Thr Ala Leu Thr Ala	
360 365 370	
ttg gaa aat gca tcc ata ctc acc tcc agt tta aca gca gag gac gat	1265
Leu Glu Asn Ala Ser Ile Leu Thr Ser Ser Leu Thr Ala Glu Asp Asp	
375 380 385 390	
aga ggt ggt tct gta ata aag tac agc aaa aat act act cgt aag cag	1313
Arg Gly Gly Ser Val Ile Lys Tyr Ser Lys Asn Thr Thr Arg Lys Gln	
395 400 405	
tgg ctc aaa gag acc cct gac act ttg ttg aac atc ctt aag aat gct	1361
Trp Leu Lys Glu Thr Pro Asp Thr Leu Leu Asn Ile Leu Lys Asn Ala	
410 415 420	
gat ctc agc ttg gct ttt caa aca tac aca ata tat aga cca ggt tca	1409
Asp Leu Ser Leu Ala Phe Gln Thr Tyr Thr Ile Tyr Arg Pro Gly Ser	
425 430 435	
gaa ggg ttc ttg aaa ggc ccc ctg tct gaa gaa aca gaa gca tcg gac	1457
Glu Gly Phe Leu Lys Gly Pro Leu Ser Glu Glu Thr Glu Ala Ser Asp	
440 445 450	
agt gtt gat gga ggt cac gat tct gtc att ttg gat cca gag cga ctt	1505
Ser Val Asp Gly Gly His Asp Ser Val Ile Leu Asp Pro Glu Arg Leu	
455 460 465 470	
gag cct ggg cta gat gag gag gac acg gac ttt gag gag gaa gat gac	1553
Glu Pro Gly Leu Asp Glu Glu Asp Thr Asp Phe Glu Glu Glu Asp Asp	
475 480 485	
aac ccc gac tgg gtg tca gag ctg aag aag cga gct gga tgg caa ggc	1601
Asn Pro Asp Trp Val Ser Glu Leu Lys Lys Arg Ala Gly Trp Gln Gly	
490 495 500	
ctg tgc gac aga taa tgcctgagga aatgttcctg agtcacgctg aggagagcct	1656
Leu Cys Asp Arg *	
505	
tcactcagga gttcatgctg agatgatcat gagttcatgc gacgtatatatt ttcctttgga	1716
aacagaatga agcagaggaa actcttaata cttaaaatcg ttcttgatta gtatcgtgag	1776
tttgaaaagt ctagaactcc tgtaagtttt tgaactcaag ggagaaggta tagtggaatg	1836
agtgtgagca tggggctttg cagtcccata gaacagaaat gggatgctag cgtgccacta	1896
cctacttgtg tgattgtggg aaattactta acctcttcaa gcccgaattt cctcaaccat	1956
aaaatgaaga taataatgcc tacctcagag ggatgctgac cacagacctt tatagcagcc	2016
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<210> 118

<211> 506  
 <212> PRT  
 <213> Homo sapiens

<400> 118

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Arg	Ala	Leu	Leu	Val	Gln	His	Glu	Ser	Ser	Asn	Gln	Met	Phe	Ala	Met
			20					25					30		
Lys	Glu	Ile	Arg	Leu	Pro	Lys	Ser	Phe	Ser	Asn	Thr	Gln	Asn	Ser	Arg
	35						40					45			
Lys	Glu	Ala	Val	Leu	Leu	Ala	Lys	Met	Lys	His	Pro	Asn	Ile	Val	Ala
	50					55					60				
Phe	Lys	Glu	Ser	Phe	Glu	Ala	Glu	Gly	His	Leu	Tyr	Ile	Val	Met	Glu
65					70					75					80
Tyr	Cys	Asp	Gly	Gly	Asp	Leu	Met	Gln	Lys	Ile	Lys	Gln	Gln	Lys	Gly
			85						90					95	
Lys	Leu	Phe	Pro	Glu	Asp	Met	Ile	Leu	Asn	Trp	Phe	Thr	Gln	Met	Cys
			100					105					110		
Leu	Gly	Val	Asn	His	Ile	His	Lys	Lys	Arg	Val	Leu	His	Arg	Asp	Ile
		115					120					125			
Lys	Ser	Lys	Asn	Ile	Phe	Leu	Thr	Gln	Asn	Gly	Lys	Val	Lys	Leu	Gly
	130					135					140				
Asp	Phe	Gly	Ser	Ala	Arg	Leu	Leu	Ser	Asn	Pro	Met	Ala	Phe	Ala	Cys
145					150					155					160
Thr	Tyr	Val	Gly	Thr	Pro	Tyr	Tyr	Val	Pro	Pro	Glu	Ile	Trp	Glu	Asn
			165						170					175	
Leu	Pro	Tyr	Asn	Asn	Lys	Ser	Asp	Ile	Trp	Ser	Leu	Gly	Cys	Ile	Leu
			180					185					190		
Tyr	Glu	Leu	Cys	Thr	Leu	Lys	His	Pro	Phe	Gln	Ala	Asn	Ser	Trp	Lys
		195					200					205			
Asn	Leu	Ile	Leu	Lys	Val	Cys	Gln	Gly	Cys	Ile	Ser	Pro	Leu	Pro	Ser
	210						215					220			
His	Tyr	Ser	Tyr	Glu	Leu	Gln	Phe	Leu	Val	Lys	Gln	Met	Phe	Lys	Arg
225					230						235				240
Asn	Pro	Ser	His	Arg	Pro	Ser	Ala	Thr	Thr	Leu	Leu	Ser	Arg	Gly	Ile
			245							250				255	
Val	Ala	Arg	Leu	Val	Gln	Lys	Cys	Leu	Pro	Pro	Glu	Ile	Ile	Met	Glu
			260					265					270		
Tyr	Gly	Glu	Glu	Val	Leu	Glu	Glu	Ile	Lys	Asn	Ser	Lys	His	Asn	Thr
		275					280					285			
Pro	Arg	Lys	Lys	Thr	Asn	Pro	Ser	Arg	Ile	Arg	Ile	Ala	Leu	Gly	Asn
	290					295					300				
Glu	Ala	Ser	Thr	Val	Gln	Glu	Glu	Gln	Asp	Arg	Lys	Gly	Ser	His	
305					310				315					320	
Thr	Asp	Leu	Glu	Ser	Ile	Asn	Glu	Asn	Leu	Val	Glu	Ser	Ala	Leu	Arg
			325						330					335	
Arg	Val	Asn	Arg	Glu	Glu	Lys	Gly	Asn	Lys	Ser	Val	His	Leu	Arg	Lys
			340					345					350		
Ala	Ser	Ser	Pro	Asn	Leu	His	Arg	Arg	Gln	Trp	Glu	Lys	Asn	Val	Pro
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Asn	Thr	Ala	Leu	Thr	Ala	Leu	Glu	Asn	Ala	Ser	Ile	Leu	Thr	Ser	Ser
		370				375					380				
Leu	Thr	Ala	Glu	Asp	Asp	Arg	Gly	Gly	Ser	Val	Ile	Lys	Tyr	Ser	Lys
385					390					395					400
Asn	Thr	Thr	Arg	Lys	Gln	Trp	Leu	Lys	Glu	Thr	Pro	Asp	Thr	Leu	Leu
			405						410					415	
Asn	Ile	Leu	Lys	Asn	Ala	Asp	Leu	Ser	Leu	Ala	Phe	Gln	Thr	Tyr	Thr
			420					425					430		
Ile	Tyr	Arg	Pro	Gly	Ser	Glu	Gly	Phe	Leu	Lys	Gly	Pro	Leu	Ser	Glu



ctg cga aat gtc atg tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg	528
Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val	
165 170 175	
cac gag agc aat gag gtc tgg tgc cac tgc atc acc acc atc ttc aac	576
His Glu Ser Asn Glu Val Trp Cys His Cys Ile Thr Thr Ile Phe Asn	
180 185 190	
tac ttc gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac	624
Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr	
195 200 205	
ctg cac acg gcc att gtc atg acc tac tcc act gag cgc ctg cgc aag	672
Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys	
210 215 220	
tgc ctc ttc ctc ttc atc gga tgg tgc atc ccc ttc ccc atc atc gtc	720
Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val	
225 230 235 240	
gcc tgg gcc atc ggc aag ctc tac tat gag aat gaa cag tgc tgg ttt	768
Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe	
245 250 255	
ggc aag gag cct ggc gac ctg gtg gac tac atc tac caa ggc ccc atc	816
Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile	
260 265 270	
att ctc gtg ctc ctg atc aat ttc gta ttt ctg ttc aac atc gtc agg	864
Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg	
275 280 285	
atc cta atg aca aag tta cgc gcg tcc acc aca tcc gag aca atc cag	912
Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln	
290 295 300	
tac agg aag gca gtg aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc	960
Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly	
305 310 315 320	
atc acc tac atg ctc ttc ttc gtc aat ccc ggg gag gac gac ctg tca	1008
Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser	
325 330 335	
cag atc atg ttc atc tat ttc aac tcc ttc ctg cag tgc ttc cag ggt	1056
Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly	
340 345 350	
ttc ttc gtg tct gtc ttc tac tgc ttc ttc aat gga gag gtg cgc tca	1104
Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser	
355 360 365	
gcc gtg agg aag agg tgg cac cgc tgg cag gac cat cac tcc ctt cga	1152
Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg	
370 375 380	
gtc ccc atg gcc cgg gcc atg tcc atc cct aca tca ccc aca cgg atc	1200
Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile	
385 390 395 400	
agc ttc cac agc atc aag cag acg gcc gct gtg tga cccctcggtc	1246

Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val \*  
 405 410

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gccacctgc acagctcccc tgtctcctc caccttcttc ctctgggttc tctgtgctgg 1306
gcaggctctc gtggggcagg agatgggagg ggagagacca gctctccagc ctggcaggaa 1366
agaggggggtg cggcagccaa gggggactgc aaggagacagg gatgagtggg ggccaccagg 1426
ctcagcgcaa gaggaagcag aggggaattca caggaccccc tgagaagagc cagtcagatg 1486
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aggcatggag gagggaggcg tgggatggga atagcagaac caccatgtct tcagtgattg 2026
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<210> 120  
 <211> 411  
 <212> PRT  
 <213> Homo sapiens

<400> 120

Met	Asp	Ala	Ala	Leu	Leu	His	Ser	Leu	Leu	Glu	Ala	Asn	Cys	Ser	Leu
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			20					25					30		
Pro	Glu	Gly	Pro	Tyr	Ser	Tyr	Cys	Asn	Thr	Thr	Leu	Asp	Gln	Ile	Gly
		35					40					45			
Thr	Cys	Trp	Pro	Arg	Ser	Ala	Ala	Gly	Ala	Leu	Val	Glu	Arg	Pro	Cys
	50				55					60					
Pro	Glu	Tyr	Phe	Asn	Gly	Val	Lys	Tyr	Asn	Thr	Thr	Arg	Asn	Ala	Tyr
65				70					75					80	
Arg	Glu	Cys	Leu	Asn	Gly	Thr	Trp	Ala	Ser	Lys	Ile	Asn	Tyr	Ser	
			85					90					95		
Gln	Cys	Glu	Pro	Ile	Leu	Asp	Asp	Lys	Gln	Arg	Lys	Tyr	Asp	Leu	His
			100					105					110		
Tyr	Arg	Ile	Ala	Leu	Val	Val	Asn	Tyr	Leu	Gly	His	Cys	Val	Ser	Val
		115					120					125			
Ala	Ala	Leu	Val	Ala	Ala	Phe	Leu	Leu	Phe	Leu	Ala	Leu	Arg	Ser	Ile
	130					135				140					
Arg	Cys	Leu	Arg	Asn	Val	Ile	His	Trp	Asn	Leu	Ile	Thr	Thr	Phe	Ile
145				150					155					160	
Leu	Arg	Asn	Val	Met	Trp	Phe	Leu	Leu	Gln	Leu	Val	Asp	His	Glu	Val
			165					170						175	
His	Glu	Ser	Asn	Glu	Val	Trp	Cys	His	Cys	Ile	Thr	Thr	Ile	Phe	Asn
		180						185					190		
Tyr	Phe	Val	Val	Thr	Asn	Phe	Phe	Trp	Met	Phe	Val	Glu	Gly	Cys	Tyr
		195				200					205				
Leu	His	Thr	Ala	Ile	Val	Met	Thr	Tyr	Ser	Thr	Glu	Arg	Leu	Arg	Lys
	210				215						220				
Cys	Leu	Phe	Leu	Phe	Ile	Gly	Trp	Cys	Ile	Pro	Phe	Pro	Ile	Ile	Val
225				230						235				240	
Ala	Trp	Ala	Ile	Gly	Lys	Leu	Tyr	Tyr	Glu	Asn	Glu	Gln	Cys	Trp	Phe
			245					250						255	
Gly	Lys	Glu	Pro	Gly	Asp	Leu	Val	Asp	Tyr	Ile	Tyr	Gln	Gly	Pro	Ile
		260					265					270			
Ile	Leu	Val	Leu	Leu	Ile	Asn	Phe	Val	Phe	Leu	Phe	Asn	Ile	Val	Arg





	115	120	125	
cat ctg gct gac ccc tcc gtg ctg gag gcc ctg cgg cag aag gcc aac	553			
His Leu Ala Asp Pro Ser Val Leu Glu Ala Leu Arg Gln Lys Ala Asn				
130 135 140				
ttc aag cac tac aaa ccc aag cag ttc agc atg ctg gag ttc ctg cac	601			
Phe Lys His Tyr Lys Pro Lys Gln Phe Ser Met Leu Glu Phe Leu His				
145 150 155				
cgt gtg ggc cat gac ctg aag gat atg atg ctc tac tgc aag ttc aaa	649			
Arg Val Gly His Asp Leu Lys Asp Met Met Leu Tyr Cys Lys Phe Lys				
160 165 170				
ggg cag gag tgc ggc cac caa gac ttc acc aca gtg ttt aca aaa tat	697			
Gly Gln Glu Cys Gly His Gln Asp Phe Thr Thr Val Phe Thr Lys Tyr				
175 180 185 190				
ggg aag tgt tac atg ttt aac tca ggc gag gat ggc aaa cct ctg ctc	745			
Gly Lys Cys Tyr Met Phe Asn Ser Gly Glu Asp Gly Lys Pro Leu Leu				
195 200 205				
acc acg gtc aag ggg ggg aca ggc aac ggg ctg gag atc atg ctg gac	793			
Thr Thr Val Lys Gly Gly Thr Gly Asn Gly Leu Glu Ile Met Leu Asp				
210 215 220				
att cag cag gat gag tac ctg ccc atc tgg gga gag aca gag gaa acg	841			
Ile Gln Gln Asp Glu Tyr Leu Pro Ile Trp Gly Glu Thr Glu Glu Thr				
225 230 235				
aca ttt gaa gca gga gtg aaa gtt cag atc cac agt cag tct gag cca	889			
Thr Phe Glu Ala Gly Val Lys Val Gln Ile His Ser Gln Ser Glu Pro				
240 245 250				
cct ttc atc caa gag ctg ggc ttt ggg gtg gct cca ggg ttc cag acc	937			
Pro Phe Ile Gln Glu Leu Gly Phe Gly Val Ala Pro Gly Phe Gln Thr				
255 260 265 270				
ttt gtg gcc aca cag gag cag agg ctc aca tac ctg ccc cca ccg tgg	985			
Phe Val Ala Thr Gln Glu Gln Arg Leu Thr Tyr Leu Pro Pro Pro Trp				
275 280 285				
ggt gag tgc cga tcc tca gag atg ggc ctc gac ttt ttt cct gtt tac	1033			
Gly Glu Cys Arg Ser Ser Glu Met Gly Leu Asp Phe Phe Pro Val Tyr				
290 295 300				
agc atc acc gcc tgt agg att gac tgt gag acc cgc tac att gtg gaa	1081			
Ser Ile Thr Ala Cys Arg Ile Asp Cys Glu Thr Arg Tyr Ile Val Glu				
305 310 315				
aac tgc aac tgc cgc atg gtt cac atg cca ggg gat gcc cct ttt tgt	1129			
Asn Cys Asn Cys Arg Met Val His Met Pro Gly Asp Ala Pro Phe Cys				
320 325 330				
acc cct gag cag cac aag gag tgt gca gag cct gcc cta ggt ctg ttg	1177			
Thr Pro Glu Gln His Lys Glu Cys Ala Glu Pro Ala Leu Gly Leu Leu				
335 340 345 350				
gcg gaa aag gac agc aat tac tgt ctc tgc agg aca ccc tgc aac cta	1225			
Ala Glu Lys Asp Ser Asn Tyr Cys Leu Cys Arg Thr Pro Cys Asn Leu				
355 360 365				

acc cgc tac aac aaa gag ctc tcc atg gtg aag atc ccc agc aag aca	1273
Thr Arg Tyr Asn Lys Glu Leu Ser Met Val Lys Ile Pro Ser Lys Thr	
370 375 380	
tca gcc aag tac ctt gag aag aaa ttt aac aaa tca gaa aaa tat atc	1321
Ser Ala Lys Tyr Leu Glu Lys Lys Phe Asn Lys Ser Glu Lys Tyr Ile	
385 390 395	
tca gag aac atc ctt gtt ctg gat ata ttt ttt gaa gct ctc aat tat	1369
Ser Glu Asn Ile Leu Val Leu Asp Ile Phe Phe Glu Ala Leu Asn Tyr	
400 405 410	
gag aca att gaa cag aag aag gcg tat gaa gtt gct gcc tta ctt ggt	1417
Glu Thr Ile Glu Gln Lys Lys Ala Tyr Glu Val Ala Ala Leu Leu Gly	
415 420 425 430	
gat att ggt ggt cag atg gga ttg ttc att ggt gct agt atc ctt aca	1465
Asp Ile Gly Gly Gln Met Gly Leu Phe Ile Gly Ala Ser Ile Leu Thr	
435 440 445	
ata cta gag ctc ttt gat tat att tat gag ctg atc aaa gag aag cta	1513
Ile Leu Glu Leu Phe Asp Tyr Ile Tyr Glu Leu Ile Lys Glu Lys Leu	
450 455 460	
tta gac ctg ctt ggc aaa gag gag gat gaa ggg agc cac gat gag aat	1561
Leu Asp Leu Leu Gly Lys Glu Glu Asp Glu Gly Ser His Asp Glu Asn	
465 470 475	
gtg agt act tgt gac aca atg cca aac cac tct gaa acc atc agt cac	1609
Val Ser Thr Cys Asp Thr Met Pro Asn His Ser Glu Thr Ile Ser His	
480 485 490	
act gtg aac gtg ccc ctg cag acg acc ctg ggg acc ctg gaa gaa ata	1657
Thr Val Asn Val Pro Leu Gln Thr Thr Leu Gly Thr Leu Glu Glu Ile	
495 500 505 510 510	
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Ala Cys	

<210> 122

<211> 512

<212> PRT

<213> Homo sapiens

<400> 122

Met Asp Leu Lys Glu Ser Pro Ser Glu Gly Ser Leu Gln Pro Ser Ser	
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Phe Val Tyr Gly Pro Leu Thr Ile Arg Arg Val Leu Trp Ala Val Ala	
35 40 45	
Phe Val Gly Ser Leu Gly Leu Leu Leu Val Glu Ser Ser Glu Arg Val	
50 55 60	
Ser Tyr Tyr Phe Ser Tyr Gln His Val Thr Lys Val Asp Glu Val Val	
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<400> 123

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aaa gcc att ctt gtt aaa tct aca gaa gat ggc aga cag tat gtt atc	96
Lys Ala Ile Leu Val Lys Ser Thr Glu Asp Gly Arg Gln Tyr Val Ile	
20 25 30	
aag gaa att aac atc tca aga atg tcc agt aaa gaa aga gaa gaa tca	144
Lys Glu Ile Asn Ile Ser Arg Met Ser Ser Lys Glu Arg Glu Glu Ser	
35 40 45	
agg aga gaa gtt gca gta ttg gca aac atg aag cat cca aat att gtc	192
Arg Arg Glu Val Ala Val Leu Ala Asn Met Lys His Pro Asn Ile Val	
50 55 60	
cag tat aga gaa tca ttt gaa gaa aat ggc tct ctc tac ata gta atg	240
Gln Tyr Arg Glu Ser Phe Glu Glu Asn Gly Ser Leu Tyr Ile Val Met	
65 70 75 80	
gat tac tgt gag gga ggg gat ctg ttt aag cga ata aat gct cag aaa	288
Asp Tyr Cys Glu Gly Gly Asp Leu Phe Lys Arg Ile Asn Ala Gln Lys	
85 90 95	
ggc gtt ttg ttt caa gag gat cag att ttg gac tgg ttt gta cag ata	336
Gly Val Leu Phe Gln Glu Asp Gln Ile Leu Asp Trp Phe Val Gln Ile	
100 105 110	
tgt ttg gcc ctg aaa cat gta cat gat aga aaa att ctt cat cga gac	384
Cys Leu Ala Leu Lys His Val His Asp Arg Lys Ile Leu His Arg Asp	
115 120 125	
att aaa tct cag aac ata ttt tta act aaa gat gga aca gta caa ctt	432
Ile Lys Ser Gln Asn Ile Phe Leu Thr Lys Asp Gly Thr Val Gln Leu	
130 135 140	
gga gat ttt gga att gct aga gtt ctt aat agt act gta gag ctg gct	480
Gly Asp Phe Gly Ile Ala Arg Val Leu Asn Ser Thr Val Glu Leu Ala	
145 150 155 160	
cga act tgc ata ggg acc cca tac tac ttg tca cct gaa atc tgt gaa	528
Arg Thr Cys Ile Gly Thr Pro Tyr Tyr Leu Ser Pro Glu Ile Cys Glu	
165 170 175	
aac aaa cct tac aat aat aaa agt gac att tgg gct ctg ggg tgt gtc	576
Asn Lys Pro Tyr Asn Asn Lys Ser Asp Ile Trp Ala Leu Gly Cys Val	
180 185 190	
ctt tat gag ctg tgt aca ctt aaa cat gct ttt gaa gct ggc agt atg	624
Leu Tyr Glu Leu Cys Thr Leu Lys His Ala Phe Glu Ala Gly Ser Met	
195 200 205	
aaa aac ctg gta ctg aag ata ata tct gga tct ttt cca cct gtg tct	672
Lys Asn Leu Val Leu Lys Ile Ile Ser Gly Ser Phe Pro Pro Val Ser	
210 215 220	
ttg cat tat tcc tat gat ctc cgc agt ttg gtg tct cag tta ttt aaa	720
Leu His Tyr Ser Tyr Asp Leu Arg Ser Leu Val Ser Gln Leu Phe Lys	

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Arg Asn Pro Arg Asp	Arg Pro Ser Val	Asn Ser Ile Leu Glu	Lys Gly	
	245	250	255	
ttt ata gcc aaa cgc att gaa aag	ttt ctc tct cct cag ctt att gca		816	
Phe Ile Ala Lys Arg Ile Glu Lys	Phe Leu Ser Pro Gln Leu Ile Ala			
	260	265	270	
gaa gaa ttt tgt cta aaa aca ttt tcg aag	ttt gga tca cag cct ata		864	
Glu Glu Phe Cys Leu Lys Thr Phe Ser Lys	Phe Gly Ser Gln Pro Ile			
	275	280	285	
cca gct aaa aga cca gct tca gga caa aac tcg att tct gtt atg cct			912	
Pro Ala Lys Arg Pro Ala Ser Gly Gln Asn Ser	Ile Ser Val Met Pro			
	290	295	300	
gct cag aaa att aca aag cct gcc gct aaa tat gga ata cct tta gca			960	
Ala Gln Lys Ile Thr Lys Pro Ala Ala Lys Tyr Gly Ile Pro Leu Ala				
	305	310	315	320
tat aag aaa tat gga gat aaa aaa tta cac gaa aag aaa cca ctg caa			1008	
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Ala Pro Ser Ser Phe Ser Ser Arg Gly Gln Tyr Glu His Tyr His Ala				
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 Gly Val Leu Phe Gln Glu Asp Gln Ile Leu Asp Trp Phe Val Gln Ile  
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Tyr	Asn	Tyr	Tyr	Ser	Thr	Leu	Ser	Phe	Thr	Thr	Asp	Lys	Leu	Tyr	Ala		
				55				60					65				
gag	ttt	ggc	aga	gag	gct	tct	aac	aat	ttt	aca	gaa	atg	agc	cag	aga	298	
Glu	Phe	Gly	Arg	Glu	Ala	Ser	Asn	Asn	Phe	Thr	Glu	Met	Ser	Gln	Arg		
		70					75					80					
ctt	gaa	tca	atg	gtg	aaa	aat	gca	ttt	tat	aaa	tct	cca	tta	agg	gaa	346	
Leu	Glu	Ser	Met	Val	Lys	Asn	Ala	Phe	Tyr	Lys	Ser	Pro	Leu	Arg	Glu		
		85					90					95					
gaa	ttt	gtc	aag	tct	cag	gtt	atc	aag	ttc	agt	caa	cag	aag	cat	gga	394	
Glu	Phe	Val	Lys	Ser	Gln	Val	Ile	Lys	Phe	Ser	Gln	Gln	Lys	His	Gly		
	100				105				110								
gtg	ttg	gct	cat	atg	ctg	ttg	att	tgt	aga	ttt	cac	tct	act	gag	gat	442	
Val	Leu	Ala	His	Met	Leu	Leu	Ile	Cys	Arg	Phe	His	Ser	Thr	Glu	Asp		
	115				120				125					130			
cct	gaa	act	gta	gat	aaa	att	gtt	caa	ctt	gtt	tta	cat	gaa	aag	ctg	490	
Pro	Glu	Thr	Val	Asp	Lys	Ile	Val	Gln	Leu	Val	Leu	His	Glu	Lys	Leu		
				135				140						145			
caa	gat	gct	gta	gga	ccc	cct	aaa	gta	gat	cct	cac	tca	gtt	aaa	att	538	
Gln	Asp	Ala	Val	Gly	Pro	Pro	Lys	Val	Asp	Pro	His	Ser	Val	Lys	Ile		
			150					155					160				
aaa	aaa	atc	aac	aag	aca	gaa	aca	gac	agc	tat	cta	aac	cat	tgc	tgc	586	
Lys	Lys	Ile	Asn	Lys	Thr	Glu	Thr	Asp	Ser	Tyr	Leu	Asn	His	Cys	Cys		
		165					170					175					
gga	aca	cga	aga	agt	aaa	act	cta	ggt	cag	agt	ctc	agg	atc	gtt	ggt	634	
Gly	Thr	Arg	Arg	Ser	Lys	Thr	Leu	Gly	Gln	Ser	Leu	Arg	Ile	Val	Gly		
	180					185					190						
ggg	aca	gaa	gta	gaa	gag	ggt	gaa	tgg	ccc	tgg	cag	gct	agc	ctg	cag	682	
Gly	Thr	Glu	Val	Glu	Glu	Gly	Glu	Trp	Pro	Trp	Gln	Ala	Ser	Leu	Gln		
	195				200				205					210			
tgg	gat	ggg	agt	cat	cgc	tgt	gga	gca	acc	tta	att	aat	gcc	aca	tgg	730	
Trp	Asp	Gly	Ser	His	Arg	Cys	Gly	Ala	Thr	Leu	Ile	Asn	Ala	Thr	Trp		
				215				220					225				
ctt	gtg	agt	gct	gct	cac	tgt	ttt	aca	aca	tat	aag	aac	cct	gcc	aga	778	
Leu	Val	Ser	Ala	Ala	His	Cys	Phe	Thr	Thr	Tyr	Lys	Asn	Pro	Ala	Arg		
			230					235					240				
tgg	act	gct	tcc	ttt	gga	gta	aca	ata	aaa	cct	tcg	aaa	atg	aaa	cgg	826	
Trp	Thr	Ala	Ser	Phe	Gly	Val	Thr	Ile	Lys	Pro	Ser	Lys	Met	Lys	Arg		
		245					250					255					
ggt	ctc	cgg	aga	ata	att	gtc	cat	gaa	aaa	tac	aaa	cac	cca	tca	cat	874	

Gly Leu Arg Arg Ile Ile Val His Glu Lys Tyr Lys His Pro Ser His  
 260 265 270  
 gac tat gat att tct ctt gca gag ctt tct agc cct gtt ccc tac aca 922  
 Asp Tyr Asp Ile Ser Leu Ala Glu Leu Ser Ser Pro Val Pro Tyr Thr  
 275 280 285 290  
 aat gca gta cat aga gtt tgt ctc cct gat gca tcc tat gag ttt caa 970  
 Asn Ala Val His Arg Val Cys Leu Pro Asp Ala Ser Tyr Glu Phe Gln  
 295 300 305  
 cca ggt gat gtg atg ttt gtg aca gga ttt gga gca ctg aaa aat gat 1018  
 Pro Gly Asp Val Met Phe Val Thr Gly Phe Gly Ala Leu Lys Asn Asp  
 310 315 320  
 ggt tac agt caa aat cat ctt cga caa gca cag gtg act ctc ata gac 1066  
 Gly Tyr Ser Gln Asn His Leu Arg Gln Ala Gln Val Thr Leu Ile Asp  
 325 330 335  
 gct aca act tgc aat gaa cct caa gct tac aat gac gcc ata act cct 1114  
 Ala Thr Thr Cys Asn Glu Pro Gln Ala Tyr Asn Asp Ala Ile Thr Pro  
 340 345 350  
 aga atg tta tgt gct ggc tcc tta gaa gga aaa aca gat gca tgc cag 1162  
 Arg Met Leu Cys Ala Gly Ser Leu Glu Gly Lys Thr Asp Ala Cys Gln  
 355 360 365 370  
 ggt gac tct gga gga cca ctg gtt agt tca gat gct aga gat atc tgg 1210  
 Gly Asp Ser Gly Gly Pro Leu Val Ser Ser Asp Ala Arg Asp Ile Trp  
 375 380 385  
 tac ctt gct gga ata gtg agc tgg gga gat gaa tgt gcg aaa ccc aac 1258  
 Tyr Leu Ala Gly Ile Val Ser Trp Gly Asp Glu Cys Ala Lys Pro Asn  
 390 395 400  
 aag cct ggt gtt tat act aga gtt acg gcc ttg cgg gac tgg att act 1306  
 Lys Pro Gly Val Tyr Thr Arg Val Thr Ala Leu Arg Asp Trp Ile Thr  
 405 410 415  
 tca aaa act ggt atc taa gagagaaaag cctcatggaa cagataacat 1354  
 Ser Lys Thr Gly Ile \*  
 420

ttttttttgt tttttgggtg tggaggccat ttttagagat acagaattgg agaagacttg 1414  
 caaaacagct agatttgact gatctcaata aactgtttgc ttgatgcaaa aaaaaaa 1471

<210> 126

<211> 423

<212> PRT

<213> Homo sapiens

<400> 126

Met Met Tyr Arg Pro Asp Val Val Arg Ala Arg Lys Arg Val Cys Trp  
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 Glu Pro Trp Val Ile Gly Leu Val Ile Phe Ile Ser Leu Ile Val Leu  
 20 25 30  
 Ala Val Cys Ile Gly Leu Thr Val His Tyr Val Arg Tyr Asn Gln Lys  
 35 40 45  
 Lys Thr Tyr Asn Tyr Tyr Ser Thr Leu Ser Phe Thr Thr Asp Lys Leu  
 50 55 60

Tyr	Ala	Glu	Phe	Gly	Arg	Glu	Ala	Ser	Asn	Asn	Phe	Thr	Glu	Met	Ser	65	70	75	80
Gln	Arg	Leu	Glu	Ser	Met	Val	Lys	Asn	Ala	Phe	Tyr	Lys	Ser	Pro	Leu	85	90	95	
Arg	Glu	Glu	Phe	Val	Lys	Ser	Gln	Val	Ile	Lys	Phe	Ser	Gln	Gln	Lys	100	105	110	
His	Gly	Val	Leu	Ala	His	Met	Leu	Leu	Ile	Cys	Arg	Phe	His	Ser	Thr	115	120	125	
Glu	Asp	Pro	Glu	Thr	Val	Asp	Lys	Ile	Val	Gln	Leu	Val	Leu	His	Glu	130	135	140	
Lys	Leu	Gln	Asp	Ala	Val	Gly	Pro	Pro	Lys	Val	Asp	Pro	His	Ser	Val	145	150	155	160
Lys	Ile	Lys	Lys	Ile	Asn	Lys	Thr	Glu	Thr	Asp	Ser	Tyr	Leu	Asn	His	165	170	175	
Cys	Cys	Gly	Thr	Arg	Arg	Ser	Lys	Thr	Leu	Gly	Gln	Ser	Leu	Arg	Ile	180	185	190	
Val	Gly	Gly	Thr	Glu	Val	Glu	Glu	Gly	Glu	Trp	Pro	Trp	Gln	Ala	Ser	195	200	205	
Leu	Gln	Trp	Asp	Gly	Ser	His	Arg	Cys	Gly	Ala	Thr	Leu	Ile	Asn	Ala	210	215	220	
Thr	Trp	Leu	Val	Ser	Ala	Ala	His	Cys	Phe	Thr	Thr	Tyr	Lys	Asn	Pro	225	230	235	240
Ala	Arg	Trp	Thr	Ala	Ser	Phe	Gly	Val	Thr	Ile	Lys	Pro	Ser	Lys	Met	245	250	255	
Lys	Arg	Gly	Leu	Arg	Arg	Ile	Ile	Val	His	Glu	Lys	Tyr	Lys	His	Pro	260	265	270	
Ser	His	Asp	Tyr	Asp	Ile	Ser	Leu	Ala	Glu	Leu	Ser	Ser	Pro	Val	Pro	275	280	285	
Tyr	Thr	Asn	Ala	Val	His	Arg	Val	Cys	Leu	Pro	Asp	Ala	Ser	Tyr	Glu	290	295	300	
Phe	Gln	Pro	Gly	Asp	Val	Met	Phe	Val	Thr	Gly	Phe	Gly	Ala	Leu	Lys	305	310	315	320
Asn	Asp	Gly	Tyr	Ser	Gln	Asn	His	Leu	Arg	Gln	Ala	Gln	Val	Thr	Leu	325	330	335	
Ile	Asp	Ala	Thr	Thr	Cys	Asn	Glu	Pro	Gln	Ala	Tyr	Asn	Asp	Ala	Ile	340	345	350	
Thr	Pro	Arg	Met	Leu	Cys	Ala	Gly	Ser	Leu	Glu	Gly	Lys	Thr	Asp	Ala	355	360	365	
Cys	Gln	Gly	Asp	Ser	Gly	Gly	Pro	Leu	Val	Ser	Ser	Asp	Ala	Arg	Asp	370	375	380	
Ile	Trp	Tyr	Leu	Ala	Gly	Ile	Val	Ser	Trp	Gly	Asp	Glu	Cys	Ala	Lys	385	390	395	400
Pro	Asn	Lys	Pro	Gly	Val	Tyr	Thr	Arg	Val	Thr	Ala	Leu	Arg	Asp	Trp	405	410	415	
Ile	Thr	Ser	Lys	Thr	Gly	Ile										420			

<210> 127  
 <211> 1907  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (217)...(1530)

<400> 127  
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 cccggagaac ctgtgcggtg tgtagagggt gctgtgagcc acctccagcc tcgggtggct 180

gcttaagtaa ctttcaactc ctctcttctt aacact	atg aag tgt ctc ggg aag	234
	Met Lys Cys Leu Gly Lys	
	1 5	
cgc agg ggc cag gca gct gct ttc ctg cct ctt tgc tgg ctc ttt ttg	282	
Arg Arg Gly Gln Ala Ala Ala Phe Leu Pro Leu Cys Trp Leu Phe Leu		
10 15 20		
aag att ctg caa ccg ggg cac agc cac ctt tat aac aac cgc tat gct	330	
Lys Ile Leu Gln Pro Gly His Ser His Leu Tyr Asn Asn Arg Tyr Ala		
25 30 35		
ggg gat aaa gtg ata aga ttt att ccc aaa aca gaa gag gaa gca tat	378	
Gly Asp Lys Val Ile Arg Phe Ile Pro Lys Thr Glu Glu Glu Ala Tyr		
40 45 50		
gca ctg aag aaa ata tcc tat caa ctt aag gtg gac ctg tgg cag ccc	426	
Ala Leu Lys Lys Ile Ser Tyr Gln Leu Lys Val Asp Leu Trp Gln Pro		
55 60 65 70		
agc agt atc tcc tat gta tca gag gga aca gtt act gat gtc cat atc	474	
Ser Ser Ile Ser Tyr Val Ser Glu Gly Thr Val Thr Asp Val His Ile		
75 80 85		
ccc caa aat ggt tcc cga gcc ctg tta gcc ttc tta cag gaa gcc aac	522	
Pro Gln Asn Gly Ser Arg Ala Leu Leu Ala Phe Leu Gln Glu Ala Asn		
90 95 100		
atc cag tac aag gtc ctc ata gaa gat ctt cag aaa aca ctg gag aag	570	
Ile Gln Tyr Lys Val Leu Ile Glu Asp Leu Gln Lys Thr Leu Glu Lys		
105 110 115		
gga agc agc ttg cac acc cag aga aac cga aga tcc ctc tct gga tat	618	
Gly Ser Ser Leu His Thr Gln Arg Asn Arg Arg Ser Leu Ser Gly Tyr		
120 125 130		
aat tat gaa gtt tat cac tcc tta gaa gaa att caa aat tgg atg cat	666	
Asn Tyr Glu Val Tyr His Ser Leu Glu Glu Ile Gln Asn Trp Met His		
135 140 145 150		
cat ctg aat aaa act cac tca ggc ctc att cac atg ttc tct att gga	714	
His Leu Asn Lys Thr His Ser Gly Leu Ile His Met Phe Ser Ile Gly		
155 160 165		
aga tca tat gag gga aga tgt ctt ttt att tta aag ctg ggc aga cga	762	
Arg Ser Tyr Glu Gly Arg Cys Leu Phe Ile Leu Lys Leu Gly Arg Arg		
170 175 180		
tca cga ctc aaa aga gct gtt tgg ata gac tgt ggt att cat gca aga	810	
Ser Arg Leu Lys Arg Ala Val Trp Ile Asp Cys Gly Ile His Ala Arg		
185 190 195		
gaa tgg att ggt cct gcc ttt tgt cag tgg ttt gta aaa gaa gct ctt	858	
Glu Trp Ile Gly Pro Ala Phe Cys Gln Trp Phe Val Lys Glu Ala Leu		
200 205 210		
cta aca tat aag agt gac cca gcc atg aga aaa atg ttg aat cat cta	906	
Leu Thr Tyr Lys Ser Asp Pro Ala Met Arg Lys Met Leu Asn His Leu		
215 220 225 230		
tat ttc tat atc atg cct gtg ttt aac gtc gat gga tac cat ttt agt	954	

Tyr	Phe	Tyr	Ile	Met	Pro	Val	Phe	Asn	Val	Asp	Gly	Tyr	His	Phe	Ser		
				235					240					245			
tgg	acc	aat	gat	cga	ttt	tgg	aga	aaa	aca	agg	tca	agg	aac	tca	agg	1002	
Trp	Thr	Asn	Asp	Arg	Phe	Trp	Arg	Lys	Thr	Arg	Ser	Arg	Asn	Ser	Arg		
			250					255					260				
ttt	cgc	tgc	cgt	gga	gtg	gat	gcc	aat	aga	aac	tgg	aaa	gtg	aag	tgg	1050	
Phe	Arg	Cys	Arg	Gly	Val	Asp	Ala	Asn	Arg	Asn	Trp	Lys	Val	Lys	Trp		
		265					270					275					
tgt	gat	gaa	gga	gct	tct	atg	cac	cct	tgt	gat	gac	aca	tac	tgt	ggc	1098	
Cys	Asp	Glu	Gly	Ala	Ser	Met	His	Pro	Cys	Asp	Asp	Thr	Tyr	Cys	Gly		
	280					285					290						
cct	ttt	cca	gaa	tct	gag	ccg	gaa	gtg	aag	gct	gta	gct	aac	ttc	ctt	1146	
Pro	Phe	Pro	Glu	Ser	Glu	Pro	Glu	Val	Lys	Ala	Val	Ala	Asn	Phe	Leu		
295					300					305					310		
cga	aaa	cac	aga	aag	cac	att	agg	gct	tat	ctc	tcc	ttt	cat	gca	tat	1194	
Arg	Lys	His	Arg	Lys	His	Ile	Arg	Ala	Tyr	Leu	Ser	Phe	His	Ala	Tyr		
				315					320					325			
gct	cag	atg	tta	ctg	tat	ccc	tat	tct	tac	aaa	tat	gca	aca	att	ccc	1242	
Ala	Gln	Met	Leu	Leu	Tyr	Pro	Tyr	Ser	Tyr	Lys	Tyr	Ala	Thr	Ile	Pro		
			330					335					340				
aat	ttt	aga	tgt	gtg	gaa	tct	gca	gct	tat	aaa	gct	gtg	aat	gca	ctt	1290	
Asn	Phe	Arg	Cys	Val	Glu	Ser	Ala	Ala	Tyr	Lys	Ala	Val	Asn	Ala	Leu		
		345					350					355					
cag	tca	gta	tac	ggg	gta	cga	tac	aga	tat	gga	cca	gcc	tcc	aca	acg	1338	
Gln	Ser	Val	Tyr	Gly	Val	Arg	Tyr	Arg	Tyr	Gly	Pro	Ala	Ser	Thr	Thr		
		360				365					370						
ttg	tat	gtg	agc	tct	ggg	agc	tca	atg	gat	tgg	gcc	tac	aaa	aat	gga	1386	
Leu	Tyr	Val	Ser	Ser	Gly	Ser	Ser	Met	Asp	Trp	Ala	Tyr	Lys	Asn	Gly		
375					380					385					390		
ata	cct	tat	gca	ttt	gct	ttc	gaa	cta	cgt	gac	act	gga	tat	ttt	gga	1434	
Ile	Pro	Tyr	Ala	Phe	Ala	Phe	Glu	Leu	Arg	Asp	Thr	Gly	Tyr	Phe	Gly		
				395					400					405			
ttt	tta	ctc	cca	gag	atg	ctc	atc	aaa	ccc	acc	tgt	aca	gaa	act	atg	1482	
Phe	Leu	Leu	Pro	Glu	Met	Leu	Ile	Lys	Pro	Thr	Cys	Thr	Glu	Thr	Met		
			410					415					420				
ctg	gct	gtg	aaa	aat	atc	aca	atg	cac	ctg	cta	aag	aaa	tgt	ccc	tga	1530	
Leu	Ala	Val	Lys	Asn	Ile	Thr	Met	His	Leu	Leu	Lys	Lys	Cys	Pro	*		
		425					430					435					
gacagcccaa	ggctcaggtc	aactgccata	ggattctgag	caaggcctac	ttggccctgg	1590											
atagaaattg	ttttcaaaga	gaagggcagc	tgcttagagt	gaacatgtct	atggacttta	1650											
aaaagacccc	acgcaatttg	actttgtggc	aatagaaaac	agtaaaaaac	agggcatagc	1710											
ctagtttggt	ataagaaaaa	gcatccattt	tctatccttt	tagagtctta	tttgattatg	1770											
gtgggagggga	atgtttttcaa	atttcccatt	tctcaagaaa	tgttcatatt	aattgaggat	1830											
ttcccttcaa	taaattctcat	gtcctcaatt	ataaaaaaaaa	aaaaaaaaaaaa	aaaaaaaaaaaa	1890											
aaaaaaaaaa	aaaaaaaa					1907											

<210> 128

<211> 437



<212> PRT

<213> Homo sapiens

<400> 128

Met	Lys	Cys	Leu	Gly	Lys	Arg	Arg	Gly	Gln	Ala	Ala	Ala	Phe	Leu	Pro
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Leu	Cys	Trp	Leu	Phe	Leu	Lys	Ile	Leu	Gln	Pro	Gly	His	Ser	His	Leu
			20					25					30		
Tyr	Asn	Asn	Arg	Tyr	Ala	Gly	Asp	Lys	Val	Ile	Arg	Phe	Ile	Pro	Lys
		35					40					45			
Thr	Glu	Glu	Glu	Ala	Tyr	Ala	Leu	Lys	Lys	Ile	Ser	Tyr	Gln	Leu	Lys
	50					55					60				
Val	Asp	Leu	Trp	Gln	Pro	Ser	Ser	Ile	Ser	Tyr	Val	Ser	Glu	Gly	Thr
65					70					75					80
Val	Thr	Asp	Val	His	Ile	Pro	Gln	Asn	Gly	Ser	Arg	Ala	Leu	Leu	Ala
				85					90					95	
Phe	Leu	Gln	Glu	Ala	Asn	Ile	Gln	Tyr	Lys	Val	Leu	Ile	Glu	Asp	Leu
			100					105					110		
Gln	Lys	Thr	Leu	Glu	Lys	Gly	Ser	Ser	Leu	His	Thr	Gln	Arg	Asn	Arg
		115					120					125			
Arg	Ser	Leu	Ser	Gly	Tyr	Asn	Tyr	Glu	Val	Tyr	His	Ser	Leu	Glu	Glu
		130				135					140				
Ile	Gln	Asn	Trp	Met	His	His	Leu	Asn	Lys	Thr	His	Ser	Gly	Leu	Ile
145					150					155					160
His	Met	Phe	Ser	Ile	Gly	Arg	Ser	Tyr	Glu	Gly	Arg	Cys	Leu	Phe	Ile
				165					170					175	
Leu	Lys	Leu	Gly	Arg	Arg	Ser	Arg	Leu	Lys	Arg	Ala	Val	Trp	Ile	Asp
			180					185					190		
Cys	Gly	Ile	His	Ala	Arg	Glu	Trp	Ile	Gly	Pro	Ala	Phe	Cys	Gln	Trp
		195					200					205			
Phe	Val	Lys	Glu	Ala	Leu	Leu	Thr	Tyr	Lys	Ser	Asp	Pro	Ala	Met	Arg
	210					215					220				
Lys	Met	Leu	Asn	His	Leu	Tyr	Phe	Tyr	Ile	Met	Pro	Val	Phe	Asn	Val
225					230					235					240
Asp	Gly	Tyr	His	Phe	Ser	Trp	Thr	Asn	Asp	Arg	Phe	Trp	Arg	Lys	Thr
			245						250					255	
Arg	Ser	Arg	Asn	Ser	Arg	Phe	Arg	Cys	Arg	Gly	Val	Asp	Ala	Asn	Arg
			260					265					270		
Asn	Trp	Lys	Val	Lys	Trp	Cys	Asp	Glu	Gly	Ala	Ser	Met	His	Pro	Cys
		275					280					285			
Asp	Asp	Thr	Tyr	Cys	Gly	Pro	Phe	Pro	Glu	Ser	Glu	Pro	Glu	Val	Lys
	290					295					300				
Ala	Val	Ala	Asn	Phe	Leu	Arg	Lys	His	Arg	Lys	His	Ile	Arg	Ala	Tyr
305					310					315					320
Leu	Ser	Phe	His	Ala	Tyr	Ala	Gln	Met	Leu	Leu	Tyr	Pro	Tyr	Ser	Tyr
			325						330					335	
Lys	Tyr	Ala	Thr	Ile	Pro	Asn	Phe	Arg	Cys	Val	Glu	Ser	Ala	Ala	Tyr
			340					345					350		
Lys	Ala	Val	Asn	Ala	Leu	Gln	Ser	Val	Tyr	Gly	Val	Arg	Tyr	Arg	Tyr
		355					360					365			
Gly	Pro	Ala	Ser	Thr	Thr	Leu	Tyr	Val	Ser	Ser	Gly	Ser	Ser	Met	Asp
	370					375					380				
Trp	Ala	Tyr	Lys	Asn	Gly	Ile	Pro	Tyr	Ala	Phe	Ala	Phe	Glu	Leu	Arg
385					390					395					400
Asp	Thr	Gly	Tyr	Phe	Gly	Phe	Leu	Leu	Pro	Glu	Met	Leu	Ile	Lys	Pro
			405						410					415	
Thr	Cys	Thr	Glu	Thr	Met	Leu	Ala	Val	Lys	Asn	Ile	Thr	Met	His	Leu
			420					425						430	
Leu	Lys	Lys	Cys	Pro											
			435												

<210> 129  
 <211> 2530  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (186)...(1199)

<221> misc\_feature  
 <222> (1)...(2530)  
 <223> n = A,T,C or G

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 ggagccatgg cggctggggc cgggggtcgc cgggcggcgg cggcgccgag gggctgagcc 120  
 ggccgcgggc agcgccatgg cggcgccggg ttgcggaccc tgagcgccgg cgcgggggcgc 180  
 gcacc atg aac tcg tgg gac gcg ggc ctg gcg ggg cta ctg gtg ggc acg 230  
 Met Asn Ser Trp Asp Ala Gly Leu Ala Gly Leu Leu Val Gly Thr  
 1 5 10 15  
 atg ggc gtc tcg ctg ctg tcc aac gcg ctg gtg ctg ctc tgc ctg ctg 278  
 Met Gly Val Ser Leu Leu Ser Asn Ala Leu Val Leu Leu Cys Leu Leu  
 20 25 30  
 cac agc gcg gac atc cgc cgc cag gcg ccg gcg ctc ttc acc ctg aac 326  
 His Ser Ala Asp Ile Arg Arg Gln Ala Pro Ala Leu Phe Thr Leu Asn  
 35 40 45  
 ctc acg tgc ggg aac ctg ctg tgc acc gtg gtc aac atg ccg ctc acg 374  
 Leu Thr Cys Gly Asn Leu Leu Cys Thr Val Val Asn Met Pro Leu Thr  
 50 55 60  
 ctg gcc ggc gtc gtg gcg cgg cgg cag ccg gcg ggc gac cgc ctg tgc 422  
 Leu Ala Gly Val Val Ala Arg Arg Gln Pro Ala Gly Asp Arg Leu Cys  
 65 70 75  
 cgc ctg gct gcc ttc ctc gac acc ttc ctg gct gcc aac tcc atg ctc 470  
 Arg Leu Ala Ala Phe Leu Asp Thr Phe Leu Ala Ala Asn Ser Met Leu  
 80 85 90 95  
 agc atg gcc gcg ctc agc atc gac cgc tgg gtg gcc gtg gtc ttc ccg 518  
 Ser Met Ala Ala Leu Ser Ile Asp Arg Trp Val Ala Val Val Phe Pro  
 100 105 110  
 ctg agc tac cgg gcc aag atg cgc ctc cgc gac gcg gcg ctc atg gtg 566  
 Leu Ser Tyr Arg Ala Lys Met Arg Leu Arg Asp Ala Ala Leu Met Val  
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 gcc tac acg tgg ctg cac gcg ctc acc ttc cca gcc gcc gcg ctc gcc 614  
 Ala Tyr Thr Trp Leu His Ala Leu Thr Phe Pro Ala Ala Leu Ala  
 130 135 140  
 ctg tcc tgg ctc ggc ttc cac cag ctg tac gcc tcg tgc acg ctg tgc 662  
 Leu Ser Trp Leu Gly Phe His Gln Leu Tyr Ala Ser Cys Thr Leu Cys  
 145 150 155  
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 Ser Arg Arg Pro Asp Glu Arg Leu Arg Phe Ala Val Phe Thr Gly Ala  
 160 165 170 175

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Phe His Ala Leu Ser Phe Leu Leu Ser Phe Val Val Leu Cys Cys Thr	
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tac ctc aag gtg ctc aag gtg gcc cgc ttc cat tgc aag cgc atc gac	806
Tyr Leu Lys Val Leu Lys Val Ala Arg Phe His Cys Lys Arg Ile Asp	
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gtg atc acc atg cag acg ctc gtg ctg ctg gtg gac ctg cac ccc agt	854
Val Ile Thr Met Gln Thr Leu Val Leu Leu Val Asp Leu His Pro Ser	
210 215 220	
gtg cgg gaa cgc tgt ctg gag gag cag aag cgg agg cga cag cga gcc	902
Val Arg Glu Arg Cys Leu Glu Glu Gln Lys Arg Arg Arg Gln Arg Ala	
225 230 235	
acc aag aag atc agc acc ttc ata ggg acc ttc ctt gtg tgc ttc gcg	950
Thr Lys Lys Ile Ser Thr Phe Ile Gly Thr Phe Leu Val Cys Phe Ala	
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ccc tat gtg atc acc agg cta gtg gag ctc ttc tcc acg gtg ccc atc	998
Pro Tyr Val Ile Thr Arg Leu Val Glu Leu Phe Ser Thr Val Pro Ile	
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Gly Ser His Trp Gly Val Leu Ser Lys Cys Leu Ala Tyr Ser Lys Ala	
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Ala Ser Asp Pro Phe Val Tyr Ser Leu Leu Arg His Gln Tyr Arg Lys	
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Ser Cys Lys Glu Ile Leu Asn Arg Leu Leu His Arg Arg Ser Ile His	
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Ser Ser Gly Leu Thr Gly Asp Ser His Ser Gln Asn Ile Leu Pro Val	
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Ser Glu *	

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gttcctcaag ggcagatatt ggacacttcc ttatttgtca ccaaaggaat gactgtaggc	1419
cgtgtgttg cccctcttcc taagaagctg ctttgagctc ctggactcac ctgaggctcc	1479
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<210> 130

<211> 337

<212> PRT

<213> Homo sapiens

<400> 130

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Ser Ala Asp Ile Arg Arg Gln Ala Pro Ala Leu Phe Thr Leu Asn Leu
35     40     45
Thr Cys Gly Asn Leu Leu Cys Thr Val Val Asn Met Pro Leu Thr Leu
50     55     60
Ala Gly Val Val Ala Arg Arg Gln Pro Ala Gly Asp Arg Leu Cys Arg
65     70     75     80
Leu Ala Ala Phe Leu Asp Thr Phe Leu Ala Ala Asn Ser Met Leu Ser
85     90     95
Met Ala Ala Leu Ser Ile Asp Arg Trp Val Ala Val Val Phe Pro Leu
100    105    110
Ser Tyr Arg Ala Lys Met Arg Leu Arg Asp Ala Ala Leu Met Val Ala
115    120    125
Tyr Thr Trp Leu His Ala Leu Thr Phe Pro Ala Ala Ala Leu Ala Leu
130    135    140
Ser Trp Leu Gly Phe His Gln Leu Tyr Ala Ser Cys Thr Leu Cys Ser
145    150    155    160
Arg Arg Pro Asp Glu Arg Leu Arg Phe Ala Val Phe Thr Gly Ala Phe
165    170    175
His Ala Leu Ser Phe Leu Leu Ser Phe Val Val Leu Cys Cys Thr Tyr
180    185    190
Leu Lys Val Leu Lys Val Ala Arg Phe His Cys Lys Arg Ile Asp Val
195    200    205
Ile Thr Met Gln Thr Leu Val Leu Leu Val Asp Leu His Pro Ser Val
210    215    220
Arg Glu Arg Cys Leu Glu Glu Gln Lys Arg Arg Arg Gln Arg Ala Thr
225    230    235    240
Lys Lys Ile Ser Thr Phe Ile Gly Thr Phe Leu Val Cys Phe Ala Pro
245    250    255
Tyr Val Ile Thr Arg Leu Val Glu Leu Phe Ser Thr Val Pro Ile Gly
260    265    270
Ser His Trp Gly Val Leu Ser Lys Cys Leu Ala Tyr Ser Lys Ala Ala
275    280    285
Ser Asp Pro Phe Val Tyr Ser Leu Leu Arg His Gln Tyr Arg Lys Ser
290    295    300
Cys Lys Glu Ile Leu Asn Arg Leu Leu His Arg Arg Ser Ile His Ser
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Ser Gly Leu Thr Gly Asp Ser His Ser Gln Asn Ile Leu Pro Val Ser
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<210> 131

<211> 2699

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

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<400> 131

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cccagctctc ggccggcgcc ctgccccgcg tcccggagcc gcgtgagcct gcggggcc 298
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Met Glu Arg Ala Pro Pro Asp Gly Pro Leu Asn Ala Ser Gly Ala Leu
  1          5          10          15

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Ala Gly Asp Ala Ala Ala Ala Gly Gly Ala Arg Gly Phe Ser Ala Ala
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tgg acc gcg gtg ctg gcc gcg ctc atg gcg ctg ctc atc gtg gcc acg 442
Trp Thr Ala Val Leu Ala Ala Leu Met Ala Leu Leu Ile Val Ala Thr
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Val Leu Gly Asn Ala Leu Val Met Leu Ala Phe Val Ala Asp Ser Ser
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ctc cgc acc cag aac aac ttc ttc ctg ctc aac ctc gcc atc tcc gac 538
Leu Arg Thr Gln Asn Asn Phe Phe Leu Leu Asn Leu Ala Ile Ser Asp
          65          70          75          80

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Phe Leu Val Gly Ala Phe Cys Ile Pro Leu Tyr Val Pro Tyr Val Leu
          85          90          95

aca ggc cgc tgg acc ttc ggc cgg ggc ctc tgc aag ctg tgg ctg gta 634
Thr Gly Arg Trp Thr Phe Gly Arg Gly Leu Cys Lys Leu Trp Leu Val
          100          105          110

gtg gac tac ctg ctg tgc acc tcc tct gcc ttc aac atc gtg ctc atc 682
Val Asp Tyr Leu Leu Cys Thr Ser Ser Ala Phe Asn Ile Val Leu Ile
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agc tac gac cgc ttc ctg tcg gtc acc cga gcg gtc tca tac cgg gcc 730
Ser Tyr Asp Arg Phe Leu Ser Val Thr Arg Ala Val Ser Tyr Arg Ala
          130          135          140

cag cag ggt gac acg cgg cgg gca gtg cgg aag atg ctg ctg gtg tgg 778
Gln Gln Gly Asp Thr Arg Arg Ala Val Arg Lys Met Leu Leu Val Trp
          145          150          155          160

gtg ctg gcc ttc ctg ctg tac gga cca gcc atc ctg agc tgg gag tac 826
Val Leu Ala Phe Leu Leu Tyr Gly Pro Ala Ile Leu Ser Trp Glu Tyr
          165          170          175

ctg tcc ggg ggc agc tcc atc ccc gag ggc cac tgc tat gcc gag ttc 874
Leu Ser Gly Gly Ser Ser Ile Pro Glu Gly His Cys Tyr Ala Glu Phe
          180          185          190
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Phe Tyr Asn Trp Tyr Phe Leu Ile Thr Ala Ser Thr Leu Glu Phe Phe	
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Thr Pro Phe Leu Ser Val Thr Phe Phe Asn Leu Ser Ile Tyr Leu Asn	
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atc cag agg cgc acc cgc ctc cgg ctg gat ggg gct cga gag gca gcc	1018
Ile Gln Arg Arg Thr Arg Leu Arg Leu Asp Gly Ala Arg Glu Ala Ala	
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Gly Pro Glu Pro Pro Pro Glu Ala Gln Pro Ser Pro Pro Pro Pro	
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Gly Cys Trp Gly Cys Trp Gln Lys Gly His Gly Glu Ala Met Pro Leu	
260 265 270	
cac agg tat ggg gtg ggt gag gcg gcc gta ggc gct gag gcc ggg gag	1162
His Arg Tyr Gly Val Gly Glu Ala Ala Val Gly Ala Glu Ala Gly Glu	
275 280 285	
gcg acc ctc ggg ggt ggc ggt ggg ggc ggc tcc gtg gct tca ccc acc	1210
Ala Thr Leu Gly Gly Gly Gly Gly Gly Gly Ser Val Ala Ser Pro Thr	
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Ser Ser Ser Gly Ser Ser Ser Arg Gly Thr Glu Arg Pro Arg Ser Leu	
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Lys Arg Gly Ser Lys Pro Ser Ala Ser Ser Ala Ser Leu Glu Lys Arg	
325 330 335	
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Met Lys Met Val Ser Gln Ser Phe Thr Gln Arg Phe Arg Leu Ser Arg	
340 345 350	
gac agg aaa gtg gcc aag tcg ctg gcc gtc atc gtg agc atc ttt ggg	1402
Asp Arg Lys Val Ala Lys Ser Leu Ala Val Ile Val Ser Ile Phe Gly	
355 360 365	
ctc tgc tgg gcc cca tac acg ctg ctg atg atc atc cgg gcc gcc tgc	1450
Leu Cys Trp Ala Pro Tyr Thr Leu Leu Met Ile Ile Arg Ala Ala Cys	
370 375 380	
cat ggc cac tgc gtc cct gac tac tgg tac gaa acc tcc ttc tgg ctc	1498
His Gly His Cys Val Pro Asp Tyr Trp Tyr Glu Thr Ser Phe Trp Leu	
385 390 395 400	
ctg tgg gcc aac tcg gct gtc aac cct gtc ctc tac cct ctg tgc cac	1546
Leu Trp Ala Asn Ser Ala Val Asn Pro Val Leu Tyr Pro Leu Cys His	
405 410 415	
cac agc ttc cgc cgg gcc ttc acc aag ctg ctc tgc ccc cag aag ctc	1594
His Ser Phe Arg Arg Ala Phe Thr Lys Leu Leu Cys Pro Gln Lys Leu	
420 425 430	
aaa atc cag ccc cac agc tcc ctg gag cac tgc tgg aag tga	1636

Lys Ile Gln Pro His Ser Ser Leu Glu His Cys Trp Lys \*

435

440

445

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<210> 132

<211> 445

<212> PRT

<213> Homo sapiens

<400> 132

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35 40 45  
Val Leu Gly Asn Ala Leu Val Met Leu Ala Phe Val Ala Asp Ser Ser  
50 55 60  
Leu Arg Thr Gln Asn Asn Phe Phe Leu Leu Asn Leu Ala Ile Ser Asp  
65 70 75 80  
Phe Leu Val Gly Ala Phe Cys Ile Pro Leu Tyr Val Pro Tyr Val Leu  
85 90 95  
Thr Gly Arg Trp Thr Phe Gly Arg Gly Leu Cys Lys Leu Trp Leu Val  
100 105 110  
Val Asp Tyr Leu Leu Cys Thr Ser Ser Ala Phe Asn Ile Val Leu Ile  
115 120 125  
Ser Tyr Asp Arg Phe Leu Ser Val Thr Arg Ala Val Ser Tyr Arg Ala  
130 135 140  
Gln Gln Gly Asp Thr Arg Arg Ala Val Arg Lys Met Leu Leu Val Trp  
145 150 155 160  
Val Leu Ala Phe Leu Leu Tyr Gly Pro Ala Ile Leu Ser Trp Glu Tyr  
165 170 175  
Leu Ser Gly Gly Ser Ser Ile Pro Glu Gly His Cys Tyr Ala Glu Phe  
180 185 190  
Phe Tyr Asn Trp Tyr Phe Leu Ile Thr Ala Ser Thr Leu Glu Phe Phe  
195 200 205  
Thr Pro Phe Leu Ser Val Thr Phe Phe Asn Leu Ser Ile Tyr Leu Asn  
210 215 220  
Ile Gln Arg Arg Thr Arg Leu Arg Leu Asp Gly Ala Arg Glu Ala Ala  
225 230 235 240  
Gly Pro Glu Pro Pro Pro Glu Ala Gln Pro Ser Pro Pro Pro Pro Pro  
245 250 255  
Gly Cys Trp Gly Cys Trp Gln Lys Gly His Gly Glu Ala Met Pro Leu





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Gln	Leu	Thr	Phe	Pro	Ala	Val	Thr	Leu	Cys	Asn	Leu	Asn	Glu	Phe	Arg	
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Phe	Ser	Gln	Val	Ser	Lys	Asn	Asp	Leu	Tyr	His	Ala	Gly	Glu	Leu	Leu	
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gcc	ctg	ctc	aac	aac	agg	tat	gag	ata	cca	gac	aca	cag	atg	gca	gat	622
Ala	Leu	Leu	Asn	Asn	Arg	Tyr	Glu	Ile	Pro	Asp	Thr	Gln	Met	Ala	Asp	
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aaa	ccc	aaa	ccc	ttc	aac	atg	cgt	gag	ttc	tac	gac	cga	gct	ggg	cac	718
Lys	Pro	Lys	Pro	Phe	Asn	Met	Arg	Glu	Phe	Tyr	Asp	Arg	Ala	Gly	His	
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gac	att	cga	gac	atg	ctg	ctc	tcc	tgc	cac	ttc	cgg	ggg	gag	gtc	tgc	766
Asp	Ile	Arg	Asp	Met	Leu	Leu	Ser	Cys	His	Phe	Arg	Gly	Glu	Val	Cys	
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Ser	Ala	Glu	Asp	Phe	Lys	Val	Val	Phe	Thr	Arg	Tyr	Gly	Lys	Cys	Tyr	
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Thr	Phe	Asn	Ser	Gly	Arg	Asp	Gly	Arg	Pro	Arg	Leu	Lys	Thr	Met	Lys	
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gat	ggg	acg	ggc	aat	ggg	ctg	gaa	atc	atg	ctg	gac	atc	cag	cag	gac	910
Asp	Gly	Thr	Gly	Asn	Gly	Leu	Glu	Ile	Met	Leu	Asp	Ile	Gln	Gln	Asp	
			215					220					225			
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Glu	Tyr	Leu	Pro	Val	Trp	Gly	Glu	Thr	Asp	Glu	Thr	Ser	Phe	Glu	Ala	
		230					235					240				
ggc	atc	aaa	gtg	cag	atc	cat	agt	cag	gat	gaa	cct	cct	ttc	atc	gac	1006
Gly	Ile	Lys	Val	Gln	Ile	His	Ser	Gln	Asp	Glu	Pro	Pro	Phe	Ile	Asp	
	245					250					255					
cag	ctg	ggc	ttt	ggc	gtg	gcc	cca	ggc	ttc	cag	acc	ttt	gtg	gcc	tgc	1054
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Gln	Glu	Gln	Arg	Leu	Ile	Tyr	Leu	Pro	Pro	Pro	Trp	Gly	Thr	Cys	Lys	
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gct	gtt	acc	atg	gac	tcg	gat	ttg	gat	ttc	ttc	gac	tcc	tac	agc	atc	1150
Ala	Val	Thr	Met	Asp	Ser	Asp	Leu	Asp	Phe	Phe	Asp	Ser	Tyr	Ser	Ile	
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act	gcc	tgc	cgc	atc	gac	tgt	gag	acg	cgc	tac	ctg	gtg	gag	aac	tgc	1198
Thr	Ala	Cys	Arg	Ile	Asp	Cys	Glu	Thr	Arg	Tyr	Leu	Val	Glu	Asn	Cys	
		310					315					320				

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Asn Cys Arg Met Val His Met Pro Gly Asp Ala Pro Tyr Cys Thr Pro	
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gag cag tac aag gag tgt gca gat cct gct ctg gac ttc ctg gtg gag	1294
Glu Gln Tyr Lys Glu Cys Ala Asp Pro Ala Leu Asp Phe Leu Val Glu	
340 345 350 355	
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Lys Asp Gln Glu Tyr Cys Val Cys Glu Met Pro Cys Asn Leu Thr Arg	
360 365 370	
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Tyr Gly Lys Glu Leu Ser Met Val Lys Ile Pro Ser Lys Ala Ser Ala	
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Asn Ile Leu Val Leu Asp Ile Phe Phe Glu Val Leu Asn Tyr Glu Thr	
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Ile Glu Gln Lys Lys Ala Tyr Glu Ile Ala Gly Leu Leu Gly Glu Leu	
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Leu Met Thr Pro Val Pro Phe Ser Cys His Gly His Gly Val Ala Pro	
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Tyr His Pro Lys Ala Gly Cys Ser Leu Leu Ser His Glu Gly Pro Pro	
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Pro Gln Arg Pro Phe Pro Lys Pro Cys Cys Leu Gly Asp Ile Gly Gly	
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Gln Met Gly Leu Phe Ile Gly Ala Ser Ile Leu Thr Val Leu Glu Leu	
485 490 495	
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Phe Asp Tyr Ala Tyr Glu Val Ile Lys His Lys Leu Cys Arg Arg Gly	
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Lys Cys Gln Lys Glu Ala Lys Arg Ser Ser Ala Asp Lys Gly Val Ala	
520 525 530	
ctc agc ctg gac gac gtc aaa aga cac aac ccg tgc gag agc ctt cgg	1870
Leu Ser Leu Asp Asp Val Lys Arg His Asn Pro Cys Glu Ser Leu Arg	
535 540 545	
ggc cac cct gcc ggg atg aca tac gct gcc aac atc cta cct cac cat	1918
Gly His Pro Ala Gly Met Thr Tyr Ala Ala Asn Ile Leu Pro His His	
550 555 560	

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Gly Gly Ser Pro Ala Tyr His Leu Pro His Pro His Pro His Pro Pro
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Gln His Ala Gln Tyr Val Gly Pro Tyr Arg Leu Glu Lys Thr Leu Gly
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Lys Gly Gln Thr Gly Leu Val Lys Leu Gly Val His Cys Ile Thr Gly
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Leu Val Lys Lys Gly Arg Leu Thr Pro Lys Glu Ala Arg Lys Phe Phe
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Arg Gln Ile Val Ser Ala Leu Asp Phe Cys His Ser Tyr Ser Ile Cys
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Asp Asn Leu Arg Gln Leu Leu Glu Lys Val Lys Arg Gly Val Phe His	
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Met Pro His Phe Ile Pro Pro Asp Cys Gln Ser Leu Leu Arg Gly Met	
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Ile Glu Val Glu Pro Glu Lys Arg Leu Ser Leu Glu Gln Ile Gln Lys	
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His Pro Trp Tyr Leu Gly Gly Lys His Glu Pro Asp Pro Cys Leu Glu	
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Leu	Val	Gly	Ala	Leu	Pro	Phe	Asp	Asp	Asp	Asn	Leu	Arg	Gln	Leu Leu
225				230						235				240
Glu	Lys	Val	Lys	Arg	Gly	Val	Phe	His	Met	Pro	His	Phe	Ile	Pro Pro
				245					250					255
Asp	Cys	Gln	Ser	Leu	Leu	Arg	Gly	Met	Ile	Glu	Val	Glu	Pro	Glu Lys
		260						265					270	
Arg	Leu	Ser	Leu	Glu	Gln	Ile	Gln	Lys	His	Pro	Trp	Tyr	Leu	Gly Gly
	275						280					285		
Lys	His	Glu	Pro	Asp	Pro	Cys	Leu	Glu	Pro	Ala	Pro	Gly	Arg	Arg Val
	290					295					300			
Ala	Met	Arg	Ser	Leu	Pro	Ser	Asn	Gly	Glu	Leu	Asp	Pro	Asp	Val Leu
305					310					315				320
Glu	Ser	Met	Ala	Ser	Leu	Gly	Cys	Phe	Arg	Asp	Arg	Glu	Arg	Leu His
				325					330					335
Arg	Glu	Leu	Arg	Ser	Glu	Glu	Glu	Asn	Gln	Glu	Lys	Met	Ile	Tyr Tyr
			340					345					350	
Leu	Leu	Leu	Asp	Arg	Lys	Glu	Arg	Tyr	Pro	Ser	Cys	Glu	Asp	Gln Asp
	355						360					365		
Leu	Pro	Pro	Arg	Asn	Asp	Val	Asp	Pro	Pro	Arg	Lys	Arg	Val	Asp Ser
	370				375						380			
Pro	Met	Leu	Ser	Arg	His	Gly	Lys	Arg	Arg	Pro	Glu	Arg	Lys	Ser Met
385				390						395				400
Glu	Val	Leu	Ser	Ile	Thr	Asp	Ala	Gly	Gly	Gly	Gly	Ser	Pro	Val Pro
				405					410					415
Thr	Arg	Arg	Ala	Leu	Glu	Met	Ala	Gln	His	Ser	Gln	Arg	Ser	Arg Ser
			420					425					430	
Val	Ser	Gly	Ala	Ser	Thr	Gly	Leu	Ser	Ser	Ser	Pro	Leu	Ser	Ser Pro
	435						440					445		
Arg	Ser	Pro	Val	Phe	Ser	Phe	Ser	Pro	Glu	Pro	Gly	Ala	Gly	Asp Glu
	450					455					460			
Ala	Arg	Gly	Gly	Gly	Ser	Pro	Thr	Ser	Lys	Thr	Gln	Thr	Leu	Pro Ser
465					470					475				480
Arg	Gly	Pro	Arg	Gly	Gly	Gly	Ala	Gly	Glu	Gln	Pro	Pro	Pro	Pro Ser
				485					490					495
Ala	Arg	Ser	Thr	Pro	Leu	Pro	Gly	Pro	Pro	Gly	Ser	Pro	Arg	Ser Ser
		500						505					510	
Gly	Gly	Thr	Pro	Leu	His	Ser	Pro	Leu	His	Thr	Pro	Arg	Ala	Ser Pro
	515						520					525		
Thr	Gly	Thr	Pro	Gly	Thr	Thr	Pro	Pro	Pro	Ser	Pro	Gly	Gly	Gly Val
	530					535					540			
Gly	Gly	Ala	Ala	Trp	Arg	Ser	Arg	Leu	Asn	Ser	Ile	Arg	Asn	Ser Phe
545					550					555				560
Leu	Gly	Ser	Pro	Arg	Phe	His	Arg	Arg	Lys	Met	Gln	Val	Pro	Thr Ala
				565					570					575
Glu	Glu	Met	Ser	Ser	Leu	Thr	Pro	Glu	Ser	Ser	Pro	Glu	Leu	Ala Lys
		580						585				590		
Arg	Ser	Trp	Phe	Gly	Asn	Phe	Ile	Ser	Leu	Asp	Lys	Glu	Gln	Ile
	595						600					605		
Phe	Leu	Val	Leu	Lys	Asp	Lys	Pro	Leu	Ser	Ser	Ile	Lys	Ala	Asp Ile
	610					615					620			
Val	His	Ala	Phe	Leu	Ser	Ile	Pro	Ser	Leu	Ser	His	Ser	Val	Leu Ser
625					630					635				640

Gln	Thr	Ser	Phe	Arg	Ala	Glu	Tyr	Lys	Ala	Ser	Gly	Gly	Pro	Ser	Val
				645					650					655	
Phe	Gln	Lys	Pro	Val	Arg	Phe	Gln	Val	Asp	Ile	Ser	Ser	Ser	Glu	Gly
			660					665					670		
Pro	Glu	Pro	Ser	Pro	Arg	Arg	Asp	Gly	Ser	Gly	Gly	Gly	Gly	Ile	Tyr
		675					680					685			
Ser	Val	Thr	Phe	Thr	Leu	Ile	Ser	Gly	Pro	Ser	Arg	Arg	Phe	Lys	Arg
	690					695					700				
Val	Val	Glu	Thr	Ile	Gln	Ala	Gln	Leu	Leu	Ser	Thr	His	Asp	Gln	Pro
705					710					715					720
Ser	Val	Gln	Ala	Leu	Ala	Asp	Glu	Lys	Asn	Gly	Ala	Gln	Thr	Arg	Pro
			725						730					735	
Ala	Gly	Ala	Pro	Pro	Arg	Ser	Leu	Gln	Pro	Pro	Pro	Gly	Arg	Pro	Asp
			740					745					750		
Pro	Glu	Leu	Ser	Ser	Ser	Pro	Arg	Arg	Gly	Pro	Pro	Lys	Asp	Lys	Lys
		755					760					765			
Leu	Leu	Ala	Thr	Asn	Gly	Thr	Pro	Leu	Pro						
	770					775									